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Issue 89 • 21 July 1990

NEW COMPUTER EXPRESS

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WIN £500 of software

RACING AHEAD: ATARI'S 32MHz TT

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- Better graphics than an Amiga 3000

The double-speed version of Atari's ST-compatible workstation exclusively revealed page3

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Is it a mouse? Is it a scanner? It's both...

The Pagebrush by Mouse Systems is a radical new approach to the problem of scanning or digitising material into your PC or Mac II – it is an optical mouse, scanner and digitising tablet all in one.

Hand scanners are small and easy to use, but they only read narrow strips, while flatbed scanners yield whole pages, but are bulky and expensive. The Pagebrush gives you the best of both worlds, using specially patented software to read in whole pages simply by brushing what is basically a big optical mouse over your page.

The unit sits on a transparent overlay on the page which tells the mouse where it is, meaning if you miss a bit you can go back and paint it in. Because it works on co-ordinates from the overlay it can also be used for digitising data from technical drawings and photos for many publishing and technical applications.

The unit works at resolutions between 75-300 dots per inch, and yields images containing 64 shades of grey on a VGA display. It also works as a conventional mouse and as a digitising tablet.

The PC version is out soon, with the Apple Macintosh version following later in the year. Prices have yet to be announced. For more information call Mouse Systems on (0256) 461744.

• The Mouse Systems scanner which looks like a mouse.

No ninjas for UK versions of the cartoon smash

IT'S THE INVASION OF THE MUTANT TURTLES

There will be at least two Teenage Mutant Turtle computer games available in the UK before Christmas. They will have different names but, except for a single word change – 'hero' will replace 'ninja' – the Amiga, PC and C64 formats will have the same coding.

Mirrorsoft, which has just won the lucrative European licence for the Turtle computer game, will be calling its version *Teenage Mutant* ***Hero*** *Turtles*. This will be on the shelves at the same time as the already available grey import *Teenage Mutant* ***Ninja*** *Turtles*, a version from US software house Ultra.

To further confuse matters, Ultra is the US trading name for Konami – the company which has given Mirrorsoft its Turtle licence.

• No ninjas please, we're British.

Mirrorsoft will be doing its own coding for the Atari ST, Amstrad CPC and Spectrum versions which Konami does not handle in the States. The PC, Amiga and C64 coding will be port overs. A Konami spokesman added: "Mirrorsoft could always ask for a stop to be put to sales of the Ultra game, but there really isn't much point."

The reason for the name change is to tie in with the BBC's prime-time cartoon series. The BBC feels that the word 'ninja' has too many violent connotations and has replaced it with 'hero'.

• Japanese console giant Nintendo also has plans to launch a Teenage Mutant Hero Turtles bundle in this country. It is to be called The Mutant Machine, and will comprise the Nintendo Entertainment System complete with its own Turtle game. See page 4 for more on Nintendo's plans.

NEVER GET LOST ON THE CONTINENT AGAIN

If you've ever wondered how to take your Lada to Leningrad, Saab to Sweden or Peugeot to Paris, the answer is here – if you have £1,500 to spare.

The *Navigator* computerised road map (left) and journey planner has swum the Channel to include Europe in its latest version.

As well as calculating the best route, *Navigator* can work out costs based on distance and time, and is designed with the legal breaks and driving hours of the commercial driver in mind.

There is a UK version of *Navigator* at the more reasonable price of £295. *Navigator* is distributed by New Star Software, which is on 0245 265017.

• Coming soon in *Express* is a trek around Europe using *Navigator* and the new French version of *Autoroute Plus* from NextBase.

Disk speed record

The world's fastest disk drive has been created by hard disk specialist Seagate Technologies in the US.

The new technology which makes it possible is called Zone Bit Recording, which results in a 3.5-inch drive with an access time of 6.8 milliseconds, a 14 millisecond seek time, data transfer rate of 25 megabits per second, and a nippy rotation speed of 4,400 revs per minute.

Seagate's new ST1400 and ST1480 should be in place in PCs in the autumn of this year, in 426Mb and 331Mb configurations.

Amstrad beats the bomb

Nuclear blast proof processors have been accidentally released on to the domestic market and have found their way into eight bit micros, *Express* can reveal..

The adapted Z80A processors, designed to remain functional after the huge bursts of electromagnetic radiation during a nuclear attack, were apparently delivered to Amstrad in error.

The military specification Z80As have been incorporated in Amstrad 8-bit micros and some of these have already been sold.

Write on time

You could soon be writing text into your computer with a pen rather than a keyboard.

Computer scientists at IBM's Thomas J. Watson Research Centre in the US have made 'significant advances' in the search for a keyboardless interface to a computer.

The experimental Paper-like Interface computer is capable of recognising natural joined-up writing, using a flat LCD tablet and stylus. When pressure is applied using the stylus, electronic 'ink' shows the path of its point on the pressure-sensitive surface like a sort of high tech Etch-A-Sketch.

Once the handwriting is entered into the computer, it can then begin taking it apart for recognition, using a new process called 'recognise-then-segment' developed by IBM scientist Tetsunosuke Fujisake. Previous attempts have been limited to small areas – this is the first example of real writing recognition.

An ill wind...

Perhaps viruses are not always the bad guys: an anti-piracy program has been discovered in the US.

The Frankie virus attacks Atari STs running a pirate version of the Aladin Macintosh emulator, and destroys files.

The virus hunts out the pirated emulator and goes to work on any application files on the machine at the time. It announces itself by drawing a bomb icon and putting the message: "Frankie says No More Piracy!" at the top of the screen. The ST then crashes.

Blindingly-fast ST compatible takes on the A3000

UPGRADED TT RAISES THE SPEED STAKES

In a surprise move Atari has decided to scrap plans for the 16MHz ST-compatible TT workstation and replace it with a 32MHz 68030 processor version instead.

The new machine will begin production next month with mass availability expected in September. There are already 18 of the new TTs being used by developers in Holland, Belgium and Germany after top Atari executives met with leading European software developers to discuss ways of re-pitching the TT as a low-cost state-of-the-art workstation.

The 32MHz version will be supplied at the same price, £2,270, as the original 16MHz machine and is expected to run programs two to three times faster. Featuring 2Mb of RAM, a 48Mb hard disk and a multi-sync colour VGA monitor, the new TT certainly seems a bargain.

Atari itself is confident that the repositioning will offer graphics, CAD and video animation users a degree of raw power previously unavailable at such a low price. Graphics workstations of a similar specification from Apollo and Sun cost £10,000 and £17,000 respectively. An Atari spokesman described the new TT as featuring "a specification which will offer a performance rating of over 100 per cent that of the original machine. We believe it offers substantial benefits over existing products."

By 'other products' Atari is referring to the recently launched Amiga A3000 and the Mac II range, which are both pitched at the burgeoning low-cost workstation market. At last year's CeBit Show in Hanover, Atari UK boss Bob Gleadow told *Express* "We are after the guy who's buying real power – that's where the market is", but after delays in supply of the 16MHz TT it became clear that Atari were being overtaken in the low-cost power stakes.

The 32MHz TT is the company's response to advances from Apple and Commodore and the race is now on to attract workstation punters to a platform which undercuts that opposition's price-points by at least 50 per cent.

• One hell of a lot of power without the price: the 32MHz TT is Atari's most powerful machine yet.

The nearest immediate equivalent in the Apple Mac II range, the 68030-based IIcx, costs nearly double the price at £4,100 and that is for a machine rated at only 16MHz. Further up the scale, the top of the range IIfx running at 40MHz with 4Mb of RAM and a 80Mb hard disk comes in at £7,300. TT memory and hard disk upgrades to bring it up to the same IIfx spec would only cost an additional £1,200.

The new top-of-the-range Amiga A3000, featuring a 25MHz 68030 and 100Mb hard disk is priced at £3,800.

Although it is difficult to draw comparisons with machines running other processors, the new TT will compare very favorably with high-end 486 PCs and even the Acorn RISC workstations. IBM's new RISC workstation is also a higher priced competitor.

As a result, Atari is confident that the new TT will take the high ground, with the company's spokesman concluding, "This indicates a significant shift in our marketing. Whereas we were previously value-led we are now performance led." Nevertheless, it would seem that the company's motto of 'Power without the price' remains unchanged.

Atari's 32MHz TT: the full specification

ST COMPATIBILITY
Dutch developers contacted by *Express* revealed that all current ST software will run between five and seven times faster than at present without adjustment. After optimisation it is expected to run ten times as fast.

HARDWARE
The new 32MHz 68030 TT comes with 2Mb of ST-compatible RAM fitted as standard, expandable to 8 Mb with an optional 16Mb of faster TT-only RAM available.

With TOS 3.0, the functional equivalent of ST TOS 1.6, in on-board ROM, the TT comes with 720K floppy drive and 48Mb hard drive fitted as standard with room for an optional 80Mb hard disk. Input/output options include two serial ports, MIDI in/out, ST DMA, a LAN port, ST cartridge port and VGA monitor port.

DISPLAY
There are three video modes available. Low resolution with 320 x 480 on-screen pixels available in 256 colours from 4,096; medium with 16 colours on a 640 x 480 screen; and high resolution with an impressive 1,280 x 960 monochrome display. The Amiga A3000 high res can only manage 1,280 x 512 pixels.

Express looks at the front runners in the Christmas console race

Sega

With the UK launch of the 16-bit Megadrive Sega set for September and with the Master System getting new games every month, it looks as if Sega is all set to consolidate its hold on the console market.

Rumours within the industry that the Master System 2 might also be launched to coincide with the Christmas market are as strong as ever. However, if the American and Japanese markets are anything to go by, the Master System 2 will remain under wraps until interest in the mark 1 begins to fall off.

New Sega console titles ready for the bumper season include *Chase HQ* and *Operation Wolf* on 8-bit, and *Ghouls 'N' Ghosts* and *Golden Axe* on 16-bit, plus licensed games *Dick Tracy*, *Mickey Mouse* and *Moonwalker* on both formats.

November will see the release of *Gauntlet*, *Speedball* and *Xenon II* for Master System. The Megadrive will play host to *Super Thunderblade*, *Space Harrier II*, *Forgotten World* and the latest Alex Kidd outing, *Alex Kidd – Enchanted Castle*.

Commodore

Rumours of a C64-based games console have been floating around for months now, but it has been confirmed to *Express* by the managing director of a software house close to Commodore that the console will be with us soon, and that it will be called the Cub.

The Cub specification is identical to a Commodore 64, and with good reason: it is a 64 without a keyboard, although it does come with two joystick ports.

The games, of which there are already many on the market, will be the old Commodore 64 cartridges, and of course converting any joystick-based software will just be a case of 'blowing' them onto chips.

The basic unit will be priced at £99, as the whole idea of the exercise was to hit this price point. The games are likely to be well under the old price of about £25, speculated to be around the £15 mark. But then development costs will be low as the unit is based on existing technology.

Although the price is set at the £99 mark, rumours have it that a price slash of £40 is a distinct possibility.

NEC

Unfortunately for console buyers, poor US sales of the PC Engine have made NEC decide not to sell the machine in the UK, despite it being acknowledged as one of the most powerful games machines around.

The Engine, costing about £200 from the various grey importers, was rumoured to be coming out at the Computer Entertainment Show in the autumn at a substantially lower price of £99.

However NEC has since repudiated this to *Express*, saying that the PC Engine would not in fact be released, not just in the UK but the whole of Europe, for the forseeable future.

An NEC spokesman told us that the news was unwelcome in NEC UK as it can see the potential for the machine, and that a release this autumn was essential to start on the same foot as Sega and Nintendo. But the veto was issued from above, on the grounds that the US version, the TurboGrafx, has not sold in as large a quantity as it had hoped.

Grey imported machines will continue to be available.

Nintendo

Although Nintendo has the US console market wrapped up tight, its Entertainment System has as yet to make an impact in this country.

This Christmas may well see all this change. The company has plans to release the Mutant Machine in order to dovetail Mutant Turtle madness and the Christmas market. The package will consist of the NES complete with *Teenage Mutant Hero Turtles*. (see page 2)

Console X

Be prepared for a new console from a well-known manufacturer, and be prepared for it in September (see *Express* issue 68 for details). Priced around the £100 mark, the new machine wil be 8-bit

Using its own cartridge format which is expected to hold between 256K and 512K of game data, it is expected that US Gold will be providing at least 12 games for the new machine. We cannot go into any greater detail for legal reasons.

CONSOLES: THE RACE IS ON FOR THE CHRISTMAS CROWN

The pre-Christmas war of the games consoles is hotting up. While this is excellent news for the public, industry fears of savage price cuts and competitive advertising campaigns are growing by the day.

With Sega, Nintendo, Commodore and another mysterious outsider all planning new releases for Christmas, there will be flood of the machines onto the market.

The possible problems which this glut of consoles will present to the manufacturers and dealers were discussed at a secret meeting hosted by Dixons recently. Most of the major manufacturers were represented, with the one surprising absentee being Sega. The consensus appears to have been that price cuts are inevitable, and that one major contender may even have missed the boat and will be left behind in the rush.

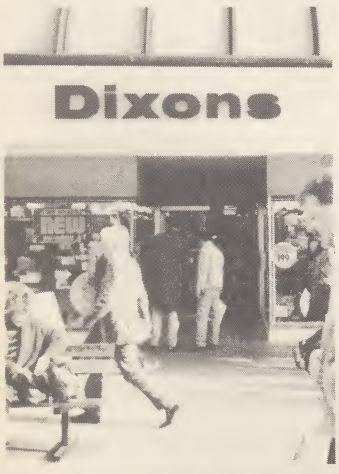
Sega, the massive Japanese console manufacturer, is planning a £2.5 million advertising campaign, which will include television coverage, to push its Master System and the European launch of the Megadrive. But for the first time in three years it looks like facing some stiff competition.

Commodore is all set to release its own C64-based console. Nintendo has plans to launch the Mutant Machine – a package comprising its Entertainment Centre and a Teenage *Mutant Hero Turtles* cartridge, on what is expected to be the crest of turtlemania.

NEC's PC Engine, tipped by many as a hot prospect for the Christmas build-up will not be featuring in the best seller lists as the firm has denied any plans to release the machine in the UK.

There is also a 'mysterious' console launch planned for September release at the Computer Entertainment Show. Due to a confidentiality agreement, *Express* cannot print any more information – however you should check out *Express* 68 for details.

• Who will win the Christmas console race? Consult the Express form guide, below, for the latest odds...



• Dixons: meeting to decide the front runners..

THE CONSOLE RACE FORM GUIDE

Name	Stable	Price	Games price	The odds
Master System	Sega	£80	£25	2/1
Megadrive	Sega	£190	approx. £30	20/1
Cub	Commodore	£60-99	approx. £20	3/1
Mutant Machine	Nintendo	Under £100	£20	4/1
PC Engine	NEC	£99	£20	WITHDRAWN
Console X	Guess who?	£99	£15-20	3/1

Hackers sent down as judge ends reign of Legion of Doom

Three members of the destructive hacking team, the self-styled 'Legion Of Doom', have been convicted in a court in Atlanta, Georgia, of assorted counts of outrageous computer vandalism. They were sentenced to between 5 and 10 years in jail plus a mammoth total $750,000 in fines.

The 'Doom' team has for the past three years been running riot in the Bell South telephone network, disrupting the service, monitoring private phone lines, stealing classified information and modifying credit data. The team was only caught when a teenager in Indiana who knew the 'Legion' was prosecuted for computer fraud and agreed to testify against the three men from the Georgia enclave.

The three convicted were Adam Grant and Robert Riggs, both aged 22 from Atlanta, and Franklin Darden Jr., aged 24 from Norcross. All three defendants pleaded guilty to the charges.

Bell South has been quoted as saying that the cost of the team's antics runs to $1.5 million, the bulk of which was spent tracking them down and changing the passwords for the entire network.

The rest of the cost is made up of lost software, accounting for $372,000, with the remainder being an estimated $800,000 in credit card losses.

The authorities have not as yet traced the other 12 members of the 'Legion Of Doom' as they are spread over such a wide area, being based in the states of Georgia, Florida, Texas, Illinois and New York.

STFM joins the STE with incompatibility problem

NEW STFM TOS WILL NOT RUN OLD GAMES

Atari has upgraded the operating system in new STFMs to a similar one to that in the STE – and the new system has the same problem with older software.

The new STFMs have TOS 1.4, which is an almost identical operating system to the TOS 1.6 in the STE.

New games are generally written to be compatible with the new TOS and many of the popular games have been converted. However many of the older games will not run on the new system, and software houses are unwilling to convert programs that have passed their peak of popularity.

John Hambly of SDL, which distributes the ST, said: "STs are being shipped with the new TOS operating systems and may therefore cause incompatibility problems when used with some commercial software".

Mike Goodman of Goodman PD said: "The problem I see is for someone buying an STFM thinking that they've bought a machine with no software compatibility problems. They would have a much better operating system, but might be puzzled why certain software wouldn't run."

Atari technical staff confirmed that TOS 1.4 was the current system in STFMs, and that both 1.4 and 1.6 were similar systems occupying 192K on a twin ROM set.

• Now Atari STFMs suffer the same incompatibility problems as the STE.

The new TOS has a number of advantages over the older TOS 1.09, including:

- An improved file selector
- A move file facility
- Cancellable group copy and delete
- The option to skip a single file during group copy
- MS-DOS disk formatting
- Autobooting for applications
- The ability to change a folder's name

To check which TOS a machine has, select Desktop Info from the Desk option on the menu bar. A dialogue box displays the TOS version number along with copyright details.

New contender for 'smallest PC' crown

Less is more with the Fujitsu FM Notebook, which is now the smallest and lightest PC compatible computer on Earth, claims the manufacturer.

The FM was shown to excited show goers at a Tokyo trade exhibition in May, and is much smaller and lighter than its nearest rival, the All In Note produced by Sharp.

Its twin battery packs give the user around 8 hours of continuous use, and it has a 80C286 processor running a ROM-based version of DOS 3.22. Being so tiny, weighing in at just under a kilo and being a mere 26 millimetres thin, the computer has no room for conventional disk drives. Instead it packs a pair of card drives using the latest thing in solid state storage technology.

The company already has a reported 50,000 orders for the machine, but gadget-hungry buyers for the FM in Japan will have to wait till September to part with their hard earned yen. Some may in fact be tempted to wait until January next year, when the FM Notebook is rumoured to be coming out complete with miniature 20Mb hard disk and a 80386 chip, although as yet this mouth-watering configuration is unconfirmed.

Boning up on a 386

The past meets the present at Heslerton Anglo-Saxon Settlement Project in North Yorkshire, Britain's largest archaeological excavation. To keep track of the terrain they are digging and the finds they are making, the team are using up-to-the-minute 386 computers running their own geographic information program.

The computers, provided by Citizen, were brought in to ease the workload of mapping and cataloguing the 10km-square site. 20 scientists are working the dig, and during the six months a year that they work they turn up over 100,000 objects which need categorising and numbering. This is where the high-tech hardware comes in.

A map of the area is being built up in the computer, and the positions of finds are inserted on the map describing their exact location and type of find. Reports are generated from the data, giving the scientists access to the available data on the site at all times, and the findings of the dig are regularly published using desktop publishing programs such as Aldus *PageMaker*, into which the map graphics and data is directly merged.

• Left: A Saxon skull surveys the screen.

Apricot is back

Trtoubled forrmer business computer giant Apricot Computers, which hit financial problems last year, has resurfaced in its new guise as a division of Mitsubishi Electric UK with announcements of its new PC products and marketing strategies for the Nineties.

Chief among the new products are the LANStations, a range of 386SX computers specifically designed for use as network workstations. The machines run at 16 or 20MHz and feature Ethernet, Enhanced VGA high-resolution graphics, security systems and 1Mb of RAM as standard.

The new market strategy includes selling Apricot products under the Mitsubishi badge in Japan, and also making some all important inroads into the lucrative US market.

For more info on the LANStation range Apricot Computers can be reached on 021-472-3002.

Modem link makes a hit down under with Demis Roussos

Two composers don't even have to be on the same continent to collaborate on a piece of art – if you can send it by modem, you can live anywhere in the world and still come up with a tasteful musical.

Composers Jon English and David Mackay have just written a rock opera together, and yet English lives in the wilds of Surrey and Mackay in Sydney, Australia. Both use Apple Macintosh computers to compose on, so it was a short step to the modem to communicate their ideas over a world-wide messaging network called AppleLink.

They can send MIDI data over the net, allowing them to exchange MIDI tune and sound files to try out the various songs by remote control. Although they did meet on several occasions to discuss the fine detail of the show, most of the hard graft was done via modem, and this electronic method of exchanging ideas has trimmed about three years off the development time, according to the authors.

The show is called *Paris*, and it tells the story of the Trojan war, including the famous bit about the wooden horse. *Paris* is due to open in 1991 at the Victorian Arts Centre in Melbourne. A recording of all the songs has already been made with performances by such stars as Barry Humphries, Harry Nilsson, Demis Roussos and the Philharmonia Chorus with the London Symphony Orchestra. Sounds great.

MacGregor: computing needs more women

The education minister, John MacGregor, recently hit out at the fact that women were still not getting involved with the computer industry.

At a speech given to the Women in Computing Conference at the University of East Anglia, Mr MacGregor regretted the fact that since 1981 the percentage of women programmers and computer analysts in this country had remained static at 20 percent.

Even in school the gender gap was obvious, with nearly twice as many boys studying computer-related subjects as there were girls. This has a domino effect because few women go on to higher education courses and then to teaching. Consequently there is a lack of female role models in computing. ■

Jobs safe

The microchip has not created vast unemployment, according to a report from the right-wing Policy Studies Group.

It had been thought that automising systems from the factory to the office would cause strikes and massive job losses. Apparently this has not occurred. The Policy Studies group claims that job losses which can be attributed to the chip have only averaged two per factory per year. ■

Future applications will work together seamlessly

SYNERGY SHOWS THE WAY FOR SOFTWARE

The way information is handled by computers is about to change according to Claris, a software publishing company which develops for the Apple Macintosh. The use of colour will become the universal, and applications packages will share data in new, dynamic ways.

Currently, the most common application is the word processor. Already people using word processing packages are co-operating to produce documents, Claris argues. With the advent of Apple's new System 7 operating system, due later this year, Claris is planning to produce applications packages that work together without user involvement, transferring data back and forth 'in a seamless fashion'.

"Within the next couple of years we expect e-mail to become common," a Claris spokesman explained. "Not just for messages sent between people, but for messages that travel from application to application."

An architect, for instance, might use a computer-aided design (CAD) package, assembling items from a CAD library to produce a drawing for a building and its internal furnishings. In the future, the CAD package would pass internal messages on the computer, accessing a parts list database. When the architect prints out the final plan, a complete schedule of works and components would also be generated – taking the grind out of quantity surveying on the project.

Claris envisages applications packages running under System 7 that will maintain 'dynamic' links with each other on a 'publish and subscribe' basis. As data is modified in the 'publishing' application, say a spreadsheet, the corresponding information held in 'subscriber' applications – which could include a word processor and database – will be updated automatically.

Users will also be able to configure standard application packages, tailoring off-the-shelf modules to their specific needs. On-line context-sensitive help will feature heavily in software packages of the future, and users will be able to extend the help system by adding information specific to the problems of their organisation.

"The essential difference between the Macintosh and other windowing environments will be provided by the tremendous amount of synergy between software products running on the Mac," Claris claims.

That synergy will be extended to other computer platforms as machines become capable of loading and saving files from different formats. ■

Keeping track of the pits and potholes

Britain's roads have always been the butt of jokes and complaints, usually with good reason, but, as any county council engineer will tell you, keeping track of all the roads in your county is a large and expensive job.

That's why Bull and Oracle UK have got together to produce a powerful computer system to help the people who manage and maintain the roads. *Road Management Information System* (*RoMIS*), comprises of a suite bringing together the benefits of a relational database and a geographic information system.

The practical upshot of this is that you can pool all the information about a set of roads in an area and view them as maps, digitised photographs and textual data on a normal networked computer system.

You also have access to budgetary information, works orders, inspection records and cyclic maintenance, forming a complete highways information system.

It won't manage the highways for the council, but it could help keep them on the right road. ■

Tons of BBC and QL software for sale

The Verran group has accumulated 22 industrial pallets full of software and peripherals for the BBC and QL computers and is selling it for as little as five pence a piece.

Tony Farrant, Verran's product manager, said: "We have thousands of BBC and Electron programs, QL Microdrive cartridges and even blank C12 computer tapes. If we sold it in one batch, we'd let it all go for around £1,500 but we're open to offers."

So if you've a BBC, Electron or QL that's screaming out for enough software to fill a 38-tonne lorry, ring Tony on 0276 66266. ■

NEW COMPUTER EXPRESS

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ATARI ST and AMIGA

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Power Pack includes:
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AMIGA

STRETCHING YOUR IMAGINATION

Impulse! Incorporated has released the follow up to its highly-regarded *Turbo Silver Ray Tracing* system, in the form of the scintillatingly-named package *Imagine*.

Imagine is a professional 3D ray tracing system that takes over where Impulse's previous product left off.

The new package includes a powerful object-creation, animation and rendering program which is capable of producing 24-bit scalable images.

And the editor incorporates a *Sculpt*-like multiple window object editor and an animation editor that allows animations to be produced using *Fantavision*-like 'tweening.

Also new for ray tracing fans is *Pixel-3D* from Axiom Software in the United States of America. Indeed, *Pixel 3D* is a handy little utility that can convert bitmapped images into 3D extruded objects with all but a minimal amount of hassle.

The program is also capable of producing object files compatible with both *Sculpt 4D* and *VideoScape 3D*.

FIXING THE FLICKER

Interlacing is a real pain – literally as well as figuratively.

If you've ever been forced to sit in front of an Amiga running an interlaced screen for a long period of time, you'll know all too well how much strain this can create on the old eyes.

However, there are three options available to you if you wish to remove this annoyance once and for all.

The first is to buy yourself one of the many screen filters available for the Amiga such as Cavendish's JitterRid device. This doesn't remove the problem entirely – it just reduces the amount of flicker to a more acceptable level.

The second, and most favourable option, is MicroWay's Flicker Fixer card.

Unfortunately, this little baby is rather expensive for what it offers and worst of all, you'll need a 2000 to use it (unless of course you're one of the lucky breed known as the A1500 owner!).

Lastly, there's the Enhanced Chip Set which is due to be made available to existing Amiga owners later this year (hopefully!).

Unfortunately, both MicroWay's FlickerFixer and the ECS will not work with a standard Amiga monitor such as the 1084 – you'll need an expensive multi-sync.

Another disadvantage of the ECS is that it doesn't actually remove interlacing at all – it simply creates new, non-interlaced screen modes.

This all sounds OK until you realise that any software that opens an interlaced screen will not be affected by the ECS, not affected one bit.

If you're lucky enough to have a 3000, then you're in heaven. The 3000 includes both the ECS and a device Commodore developed especially for the new machine – a Display Enhancer.

This board (which once again will only work with a multi-sync) de-interlaces interlaced screens in the same manner as MicroWay's product.

If Commodore has any sense at all, of course, the company will make this device available to existing Amiga users as an add-on option.

Going one better, why not fit it as standard on all new machines that include the ECS upgrade? It this does actually happen, then you know where you read it first!

OPTICAL ILLUSION

Feeling held back by your 100Mb hard disk? Then why not treat yourself to one of Active Circuits' new re-writeable optical drives! Each drive is capable of handling a wacking 650Mb of storage space.

Unlike previous devices of this type, Active's unit does not restrict the number of times that you can write to drive.

What price for such power, you may quite reasonably ask? Well, get out your cheque book and pen and write a little note for a cool £5,000.

On top of this tidy sum, you'll also need to fork out a further £500 for the controller software and associated utilities (including an optical drive backup utility).

A-MAX II ARRIVES!

As hinted a few weeks back within this column, ReadySoft has finally released the follow up to the successful A-Max Macintosh emulator package for the Amiga.

Way back when rumour had it that ReadySoft intended this new release to be a 2000 Plus product only (thereby leaving the vast number of A500 owners out in the cold).

However, the good news is that the company has in actual fact, produced not one, but two separate versions of the emulator.

A-Max comes in two flavours – A-Max II and A-Max II Plus. The Plus version is a full size PC-style plug in card for the 2000 (and 3000) that has been optimised to take advantage of the extra benefits that the highly expandable 2000 Plus series provides.

It also offers several facilities not present within the A500 version.

These include full AppleTalk compatibility, full read, write and format of Macintosh disks on your standard Amiga disk drives, and even complete with two fully compatible Macintosh serial ports.

Thus for those of you who are musicians or like to be referred to as such, A-Max II Plus provides greater compatibility with Macintosh MIDI software such as *Master Tracks*, etc. This is nothing short of a boon.

As briefly touched upon earlier, A-Max II Plus contains a very sophisticated disk driver which can read three different disk formats: Macintosh 800K, MagicSac/Spectre (ST) and the original A-Max format.

Indeed, even though Amiga drives are renowned for their speed (or lack of it, rather!), A-Max II offers disk transfer rates that approach that of the tear-away Macintosh.

Undoubtedly the inclusion of full hard disk support wins the major addition award to this new version, however.

A-Max II allows you to access partitions on an Amiga hard drive during emulation, making it possible to run very large applications such as *PageMaker* and Quark *XPress*. A-Max can also play any of your Mac digitised sounds.

ReadySoft claims that the vast majority of productivity software should work without problems, but incompatibility may still exist with copy protect software and some games.

In case you had begun to despair, however, *Tetris* is definately one of the many, important offerings that works like a charm.

For more information, give the folks at Entertainments International a call on 0268 541126.

As soon as I get my review copy, I'll bring you an in-depth look at just how well this impressive bit of kit pans out when under the heavy-stress test of yours truly.

NEXT WEEK

Look out for next week's Amiga column in *Express*, because in it I will include many goodies.

Next week will bring a comprehensive and in-depth look at Commodore's new multi-media system, *Amiga-Vision*, plus a mini-review of GFA's new version of the successful BASIC language, GFA BASIC 3.5.

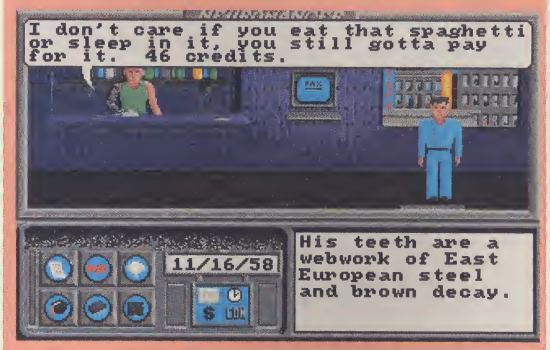
Additionally, if you are at all inclined, why not write in and let me know how you are getting on with your Amiga? Tell me tales of woe, of phenomenal success or simply of everyday use – I'm not choosey. Send all of your correspondence to me at the usual address: *New Computer Express* magazine, Beauford Court, 30 Monmouth Street, Bath BA1 2AP.

Jason Holborn

NEUROMANCER

AMIGA GAME of the WEEK

Electronic Arts • £24.99


I don't care if you eat that spaghetti or sleep in it, you still gotta pay for it. 46 credits.
11/16/58
His teeth are a webwork of East European steel and brown decay.

Towards the end of the Eighties, a new style called 'cyberpunk' sprang up, with films like *Blade Runner* and *Repo Man* being the most noteable examples of the genre.

William Gibson's book *Neuromancer* arguably made the whole subject possible. The story tells of a futuristic hacker (or 'Cowboy' as they're known) stranded in a high-tech area of Japan known as Chiba City.

In Electronic Arts' conversion of *Neuromancer*, you play the part of this Cowboy in his attempt to recover his wits and jack back into the massive 'Cyberspace' network – where all the high-flying techno-company computers are linked together in a psychedelic 'world'.

You wake up in a cheap bar with very little money, no deck and no softwarez (Cowboy slang for comms software). You must walk the streets of Chiba City trying to upgrade to a system which will allow you to jack back into Cyberspace and return to your status as one of the best hackers in the business (and in the days of Cyberspace, hacking is a VERY big business).

Unfortunately, the odds are against you. The only way you can make money is to risk arrest by getting involved in shady deals or selling your organs to the Body Shop! There are friends out there though, and they just might have some information of software to help you on your way.

***Neuromancer* should appeal greatly to RPG fans and cyberpunk buffs. The interaction between characters and technology has been very well implemented, allowing you to get the hang of 'jacking in' to the system, especially when you manage to uncover some new codes.**

There is a lot of walking around to be done before you find any information, but once you've sorted out your bearings, then you will be able to

get around Chiba City without too much trouble.

The only real problem with the game is the atmosphere. The graphics give an impression of the city as being pristine, when the whole point of cyberpunk is the 'run-down' effect of technology taking over while the real world crumbles into decay.

The sound doesn't help much either, opening with a feeble tune and continuing with lots of silence interspersed with a few extremely sub-standard effects.

Still RPGs haven't really relied on graphics and sound, so sci-fi and Dungeon fans get your deck out and give it a try.

Maff Evans

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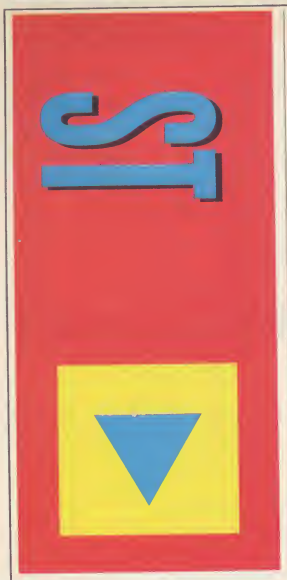


PROTEXT 5 IS HERE (ALMOST)

The ST is well served for word processors, from public domain (*ST Writer*) right up to hefty top-of-the-range items costing hundreds of pounds.

One of the best placed, however, is the mid-priced *Protext*, which has the added advantage that it first appeared on several 8-bit computers – some of which, I'm told, are apparently still going – and so have offered the ideal opportunity for new ST owners to upgrade without losing out on their acquired skills.

Indeed, upgrade time Is almost upon us once more. For Arnor has been so bold to announce formally that version 5 is coming soon to an Atari monitor near you.

The most obvious change is the long overdue adoption of pull-down menus, making it far easier to find all those features you know are there but which hide behind some elaborate combination of function keys.

Other welcome additions include multiple editing of as many as 36 files, though why anyone should need more than half a dozen at most is beyond me (any suggestions?).

Index and contents generation, a spelling checker (incorporating a whacking great new 116,000 word Collins dictionary, with foreign language dictionaries also available) and, much, much more also comes with the package

And the cost? Well, £125 may sound a lot, but believe me if you use a word processor regularly it is well worth investing in the best. Users of the current version of *Protext*, incidentally, will be able to upgrade for £49.50. For more details and to reserve your copy, call Arnor on 0733 68909. Tell 'em to keep me a copy, too!

EDUCATION DOWN UNDER

I've had a letter from Bob Pretty, a very nice chap all the way from New Zealand who is part of a group calling itself Education Through Computers – ETC for short.

Bob sent me ETC's first release, a typing tutor which costs NZ$30 – £9.95 in real money. The program enables the teacher (or parent, or user) to write practice files, which can help to reinforce typing lessons, while also, perhaps, dealing with another subject.

While another typing tutorial is hardly going to set the world alight, except in almost unimaginably bizarre circumstances, ETC deserves encouragement, I feel, for its stated aim of 'supplying the market with good educational software at an affordable price.'

Other programs currently under development include a Maths tutorial for 11 to 14-year-olds and an integrated accounts package. By the way, ETC is not only looking for customers but for British distributors of these programs and more.

For further information contact Bob Pretty, ETC Software, 9 Jackson Terrace, Porirua, New Zealand. And give him my regards.

EDUCATION INFORMATION

At the very opposite end of the spectrum (pardon my language) from the homegrown edsoft produced by companies such as ETC – see above item – is the mighty *Fun School* from Database.

The third part in this mammoth-selling series is all but ready for release, in three age groups: under fives, five to sevens and over sevens.

So great was the success of the previous instalment that it has even been translated into French and German – an almost unheard of operation for the normally quiet-selling world of ST educational software.

Fun School III is out in the next few weeks, and is expected to cost £24.99. Contact Database, 0625 859333.

CUTPRICE GAMES

Disgusted by the high cost of playing games on the ST? Well, there's a simple alternative that doesn't involve lawbreaking: the Public Domain. One library in particular is worth checking out, for it specialises in games. The name? Oh yes, PDQ.

Recent goodies I've seen from the excellent range of 500 titles include the *Mastermind* game, which with *Box the Dragon* formed a release known as *Twogame*, which was widely distributed by Silica Shop three years ago.

Showing how much things have come on since then, new offerings include *Decoder* (disk ED31) and *Clever Clogs* (ED19). Then there's a nice implementation of *Hangman* (ED32), which is not only a good little educational game but great fun too, since the answer is a song title – one of 463 from the 50s, 60s, 70s or 80s.

For a copy of the full, up-to-date PDQ catalogue write, enclosing a decent-sized SAE, to PO Box 38, Eastleigh, Hampshire SO5 5WR.

ADVENTURE PD

In a similar vein, the Adventurers PD Library promotes inexpensive text and text/graphic games.

Librarian John Barnsley wants to encourage more writers to weave with STAC and the *Adventure Game Toolkit*.

For a copy of John's catalogue on disk, write enclosing an SAE to 32 Merrivale Rd, Rising Brook, Stafford ST17 9EB.

POETIC INJUSTICE

Oh dear. Trust me and my big word processor (*Protext*, actually, as I said earlier).

I thought, perhaps hasitly, that it might be a good idea to test your ingenuity by asking you to submit limericks based on the ST. What do I get? Severe GBH on earhole, that's what.

Take this from the not-exactly-laureate-standard Geoffrey 'Tin Ear' Chan of Kingston-upon-Thames:

I'm a cool dude
So listen to me
If you wanna be rad
Get an STE!

Geoffrey's longwinded and inept contribution to the world of literature concludes with the following:

NCE is the best
It always beats all the rest;
Read it if you're cool
Or don't if you're a fool!

Factually this above item may be spot on, but as far as literary merit goes it scores zero. A limerick should have five lines, for a start, and if you think that your 'limerick' scans, Geoffrey, then I'm a Kempston Daata Scanner Professional (400DPI and cheap at twice the price).

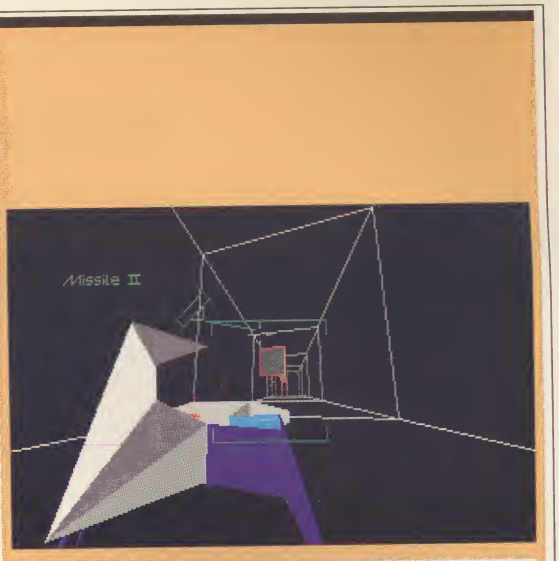
If you thought that was bad, try this, from one Philip Hill of Wakefield:

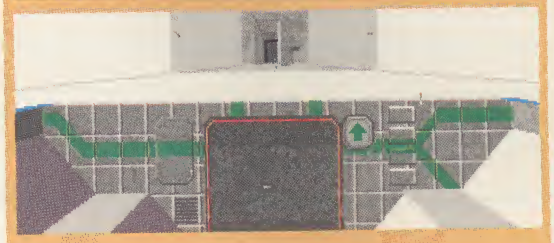
There was a machine from Atari
With power far more advanced
Than the others around
That are cream, that are brown
That resemble a brain that is empty.

Again, 10 out of 10 for accuracy and minus several million for poetic ability.

Surely you lot can do considerably better than this? I think you can, anyway. So, submit your efforts to There Was a Machine From Atari, Steve Carey, *New Computer Express*, 30 Monmouth Street, Bath BA2 2AP.

Steve Carey



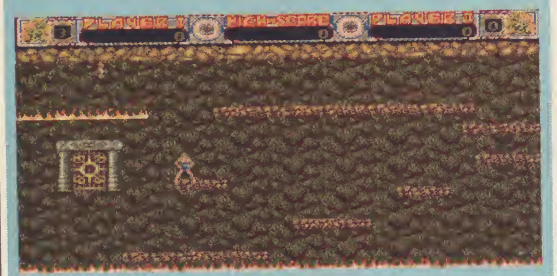


MAGIC FLY EXCLUSIVE

YOLANDA

ST GAME of the WEEK

Millenium • £19.99



If *Blood Money* bores you to tears or *Xenon II* conjures up a yawn then you need *Yolanda* – surely the most difficult arcade-style game ever, from Steve Bak, one of the biggest names in games.

Yolanda is played as a platform challenge on a single, static screen. Filling the screen are a host of platforms and the skill lies in moving your hero around them in an attempt to reach the exit to the following level.

In some of the levels the platforms are hidden from view and the only way you can make them appear is to leap headlong into thin air and hope for the best. In other levels you face an onslaught of fireballs or other lethal missiles where you need to master the timing if you're going to be successful. In yet other levels you also have to contend with platforms which burst into flames the moment you land on them. There are also, of course, aliens eager to claim your life blood.

The game is split into a tutorial section and the main game. The tutorial levels are slightly easier than the others – but only slightly. It can take you hours just escaping past the first level. Fortunately there are a variety of level ones to tackle so you aren't forced to stare at the same screen over and over again.

Graphics are small with the main hero just a few pixels tall. Nevertheless, the action is manic. Even if you're an experienced gamester, you're going to have your joystick skills seriously tested in this one.

There are no lengthy disk accesses to tolerate and with a few clicks of the joystick you can lose at one level and be into the next game in an instant. It's thoughtful considerations like these which lift *Yolanda* out of the gloom. Go for it – if you're up to the challange.

Mark Higham

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AMIGA ATARI & PC SOFTWARE

The Tipster

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E & OE

SPECTRUM

OUTLET

Outlet, a monthly on screen magazine for all Speccies has received thorough pluggings in past columns but no apologies for bringing it to your attention again because it's definitely one of the best publications at the moment.

Most independent mags don't get past the first isssue, but I've just received *Outlet* 33 and 34 which suggests the editors, Brian and Ron Cavers, have got a genuine committment to giving their readership a monthly helping of contents centred around general Speccy using rather than just playing games.

In the two issues I saw this meant lots to read including several screenfuls of letters, news, reviews of non-games software, reader ads and BASIC and machine code programming tutorials. Stirred in with these were lots of stand alone programs.

Issue 33's quota included, among other things, a 3D vector graphics demo, *Catloader* – a front-end user interface type thing – some well drawn clip art for use with PCG's desk top publishing software, a great puzzle style game and *Megadem* – a pretty impressive six minute long graphics demo.

Outlet 34 also had a large variety of programs interspersed with the text parts of the magazine. These included a typography progrom, more excellent clip art, a simple fractal generator, extended BASIC routine and a cursor control utility to name but most of them.

Everything on *Outlet* is selected, flicked through or exited from with a single key touch. There are instructions for anything that needs them and the whole thing's excellently programmed and well presented.

It reads well, too, with bags of enthusiasm. And, if you're playing games, *Outlet* is well worth buying. It's available on practically every format known to man except punched card, and a recent special offer advertised in this very mag means you can get hold of your first *Outlet* on Plus 3, Plus D, Disciple, Microdrive, opus, or tape for a truly bargain price of £2.50.

You can contact the good peole at Chezron Software by writing to 605 Loughborough Road, Birstall, Leicester LE4 4NJ. There's also a SAM version which I'll be reviewing in the Coupé column as soon as possible.

Robin Alway

POKES APLENTY

My regular Postie recently collapsed with a hernia when bravely heaving a huge sack of pokes to my door.

This Scandinavian forest-depleting supply of infinite lives, energy and similar was donated by Keith Campbell, whose great idea to set up a poke exchange service was scuppered by poor response.

So all those gaming aids didn't go to waste and because Keith's an all round good egg, he's let me have them.

The following Multiface pokes are a brief smattering of Keith's collection and naturally you'll need a Multiface or similar interface to make use of them.

Thanks to Keith and his friend Eric Gissing, not to mention my Postie.

GAME	POKE	EFFECT
Toobin	61721,0	Lives
Fox Fights Back	48071,0	Lives
Rock 'N' Roll	41423,0	Lives
Bubble Bobble	43835,150	Lives
The Great Escape	412953,183	Energy
Roadblasters	55214,0	Infinite fuel
	48634,36	Infinite lives
Virus	44945,0	Infinite lives
Elite	54261,0	
	54275,0	Money
Sabre Wulf	44786,0	Faster, no animals, don't need to collect amulet.

SAM COUPE

LERM A LITTLE

The people at Lerm Software certainly don't mess around. They have just announced updates to two of their excellent SAM utilities *SAM Tape* and *SAM Assembler*.

SAM Tape, a utility that gets lots of previously incompatible Speccy software up and running on SAM, is now up to version number 2.1. It comprises two programs: the first allows you to select a loading mode to suit your cassette player and then transfer Spectum games to disk using the NMI button. The second converts Speccy utilities like *Tasword* and *Z80 Toolkit* to run on SAM. *SAM Tape* costs £9.99 on disk only, but existing customers can get discounts on updates.

SAM Assembler 2 can now handle two source files, has an even better screen editor and 64-column display. Best of all, it now also contains a full disassembler which means good value for money at £9.99 on tape or disk.

Lerm has one last piece of Coupé software on offer and that's *SAM Address Manager* – a program that can handle 200 addresses per file and 25 files per disk so even an incredibly popular person won't run out of room. Price is £7.99 on disk only and Lerm's address is 11 Beaconsfield Close, Whitley Bay, Tyne and Wear NE25 9UW.

USER GROUP

Contact is a Coupé user group that puts out a snazzy-looking news sheet and offers public domain software for our blue-footed chum. Unfortunately, only one disk of PD is available at the moment. (£1.25 including P&P from below address).

So what's needed is further PD contributions to boost the library. Send yours to Christian Duggan, 7 Queens Close, Old Windsor, Berkshire SL4 2PP. In the first instance send an SAE for more details concerning membership.

Robin Alway

PCW

GOOCHY BOOTS UP 9512

This bloke goes to the doctor's. 'Doctor,' he says, 'I've got a cricket ball stuck up my arse.'

'A cricket ball?' says the doctor, horrified. 'How's that?' The bloke shouts, 'Don't you start!'

Anyway, *Graham Gooch's Test Cricket*, a very playable cricket simulation for the PCW up till now only available on the 8256 and 8512, is now out on the 9512.

It costs £19.95 from Audiogenic on 081-861 1166, which has put out a press release saying how it '...snapped up the Gooch licence in 1985, at a time when he was not even in the England team, although he has been an automatic choice ever since.'

Well, I never knew the selectors choose the team on the basis of how many computer games they have out in their name, but it's always been obvious that they don't concentrate particularly on performance, either.

MUSIC TO YOUR EARS

Users of *Composer's Pen* – the program that lets you write music manuscripts on screen, edit, save and print them out like *LocoScript* documents – can now subscribe to a magazine specially for them, *Composer's Forum*.

It includes compositions by users, news about new releases from makers Composit Software, hints and tips and so on. The trial issue has a very useful chart of menus and the keyboard layout.

The magazine is not a giveaway at £18 for four issues, but you can get discounts on Composit products. It is, therefore, worth a look. Details from Composit on 0952 595436.

PRIZE DRAW

Composit's lesser known drawing package, *SketchPad* 2, is an inexpensive and fun program – even if you wouldn't use it to design aircraft.

Sketch Pad 2 costs just £22.95 (phone number above) and is a good introduction to the graphics capabilities of your 8256 and 8512.

It does have a serious use, actually, which is that it interfaces with the *Composer's Pen*, allowing you to design your own symbols or change the shape of those in the program.

If you write very idiosyncratic or Stockhausen-esque scores you'll find this very useful.

PROTEXT PUZZLE

Save a file in *Protext* as `A:[RETURN]` and you have a file with no name. It can be loaded, edited, saved, erased and copied by referring to it as A:.

Save it again and you have a 'back' file called (space).BAK, which cannot be loaded or renamed. Or can it? Answer next week.

INSTANT TIPS

1. To clear the screen in CP/M, type `[EXIT] e [EXIT] h`.
2. To produce a smart ruling line across the page in *LocoScript*, press `[RETURN] [+] UL [+] RA [-] UL`. (In *LocoScript* 1, make that RJ instead of RA).
3. To start a new page in *LocoScript*, hit `[ALT] [RETURN]`.

Rob Ainsley

MSX

LETTER FROM SOMEONE

Anonymous asks where he can obtain a cassette lead for his MSX and if I can recommend a good data recorder.

To obtain a cassette lead, try Capri Marketing, 9 Dean Street, Marlow, Bucks; phone 0628 891101. This company lists the device at only £2.95 plus 50p for p&p.

As to recommending a data recorder, I find that nearly any recorder with the right connectors works, so long as the heads are set up properly. Of course the more you pay, the better the quality, so any brand-name make should suffice.

The writer of the letter also asks if I know where he can obtain the interface that converts the expansion bus of his Toshiba HX/10 into a second cartridge slot. For this item try D L Chittenden Ltd, 59-61 The Broadway, Chesham, Bucks; phone 0494 784441.

Also the mystery person could try Nightdare Ltd 11B Walnut Road, Chelston, Torquay; phone 0803 606146.

This short listing was also enclosed in the above letter, so if the sender would write again, this time enclosing his name and address, I will be able to properly credit him.

```
10 SCREEN 1 :KEYOFF: WIDTH 32: COLOR 15,1,1
20 FOR I%=0 TO 2048 STEP 2:
     VPOKE I%,85:VPOKE I%+1,170:NEXT I%
30 FOR I%=6144 TO 6913:VPOKE I%,INT(RND(1)
*256):NEXT I%
40 FOR I%=8192 TO 8223:VPOKE I%,
INT(RND(1)*256):NEXT I%:GOTO 40
```

GOING GAMEHAPPY

Although Grandslam Entertainment is now in receivership, this hasn't stopped the company releasing *Space Harrier* II for the MSX computer.

This game is now available at better software stockists. Also now available is the game *Manchester United*, by Krisalis Software, and although I have only given it a brief trial mainly to see if it loads on my MSX 2 computer (and it does), initial impressions of this game are extremely favourable.

Another quick piece of software news is that the re-release of *Macadam Bumper*, the pinball construction game, is now upon us on the Players label at only £2.99.

At this price it is good value, being one of the better pinball games.

I mentioned last week that I would try out K-Soft budget game *Witches*, an arcade game priced, again, at £2.99.

As soon as I started to load the game I could tell that it was going to be a disappointment. How, you might ask, could I tell so quickly?

Well, the answer is that the game is saved in ASCII format, and it was written in BASIC.

The gameplay consists of you controlling a character with a gun, and the object of the game is to shoot as many witches as possible.

The sprites used do not run vary smoothly, and the screen takes a while to draw and fill. Compare this game to some of the budget games on offer from Kixx, etc, and it looks a real turkey. Sorry K-Soft, games like this are no longer acceptable.

Keith Neal

CPC

SIREN'S BARGAIN

Siren Software is probably most famous for its 3.5-inch second drives. The advantages of the 3.5-inch format over 3-inch are many, of course. Cheaper disks, greater storage capacity and the ability to swap files with PCs (with the right software) are the major ones.

Of course, many CPC owners will want to stick with the 3-inch format nonetheless – after all that's what all their software will be on. Which is why Amstrad's DD-1 and FD-1 external drives are steady sellers – even at Amstrad's £130-plus asking price.

Well, they should do even better now, because Siren has landed a batch of Amstrad 3-inch drives at an absolute bargain price. While stocks last, a 464 drive plus interface will cost a mere £79.99 and a 6128 second drive will be only £74.99. That is one hell of a saving. Call Siren on 061-228 1831 to find out the latest.

SCHOOL EVEN MORE FUN

After the runaway success of *Fun School* 2, the educational program that went to the top of the games charts, it would be surprising if publisher Database didn't cash in on its success with another version.

Fun School 3 will be an even more ambitious product, though, having been designed in consultation with educationalists to fit in with the National Curriculum. Age ranges have now been adjusted, consisting of the under-fives, fives-to-sevens and over-sevens now.

As before each package will consist of six programs. These will develop numeracy, comprehension and word skills, among others. All the familiar teddy bears, frogs and robots will be there to guide children through the lessons. *Fun School* 3 should be out in September at a price of £12.99 on cassette, £16.99 on disk.

Meanwhile, even before *Fun School* 3 is out, *Fun School* 4 is being planned. Database is offering a £300 prize plus royalties to anyone who comes up with an idea subsequently incorporated into the next version.

HOME ADVENTURERS

The adventure creator *ADLAN*, from Graduate Software, has materialised after months of anticipation – and it looks very impressive.

For a start, it works from ROM, which means near-instant loading and the bulk of your machine's RAM being left free. And Graduate reckons that the games *ADLAN* produces are not limited to the single formats and styles of other adventure creators.

And users will be pleased to know that adventures written using *ADLAN* can be distributed freely – no problems with copyright or licensing. Graphics and text are supported, and two additional character sets are supplied on ROM for those fed up with the CPC's standard one. Graphics can be compressed using a built-in program for storage on disk later.

I haven't seen a copy yet, but when I do I'll give you a verdict. In the meantime, for £29.95 you'll get the *ADLAN* ROM, a disk full of sample programs and an A5 manual. Graduate Software can be found at the following address 14 Forrester Avenue, Weston-on-Trent, Derby DE7 2HX.

CHEAP ADVICE?

The people at Hotshot Entertainment have come up with quite an interesting idea – a 0898 hotline for up-to-the-moment games tips.

Give it a ring and you hear games solutions, hints and help – when I called *Castle Master* was getting the treatment. All well and good, of course, but at 38p per minute peak and 25p per minute off-peak, it's a bit tough on the old wallet.

A long set of tips could cost you a minute on the phone or longer. Nevertheless, if you want to give it a try the number is 0898 299388.

On the other hand, of course, (outrageous plug coming up) the hints in *Amstrad Action*'s book known by the title of *Cheat Mode II: The Revenge* are a teensy weensy bit economical.

After all, with 400 games from the past three years getting the treatment, each one only costs you 2.5p! (Now if you ask me, all that was one hell of a subtle link.)

So, don't delay. *Cheat Mode II* stocks are ever-dwindling. Price comes in at £9.95 for the book only, £11.95 with cassettes containing all the pokes in the book.

You can order yours by sending a cheque, plus £1.45 postage and packing, to the address as follows: *Cheat Mode II* book offer, Freepost, Somerton, Somerset TA11 7BR.

Rod Lawton

DYNASTY WARS

The first time I saw a *Dynasty Wars* demo from US Gold running on the CPC I was amazed. Here were detailed and realistic graphics like I'd never seen before, coupled with ambitious but convincing scrolling and truly amazing horse sprites.

OK, so it was only in four colours in Mode 1, but it was still highly impressive and I couldn't wait to see the game.

Well, the game is now here, and it has all the graphic originality of the demo. But has it the gameplay to turn it into anything more than a demo?

First, the plot. *Dynasty Wars* is based on the ancient chinese story of the Han Clan. Back in China's fuedal past, this ruling Han Clan was overthrown by rebel warlords. Only four Han warriors survived – but these were enough to fight and ultimately defeat the usurping warlords.

You control the four Han warriors in play, and it all seems a little unfair at first because the Hans are on horseback while the enemy peasants mill around on foot. There may be more of them than there are of you, but they're pretty easy meat for your weapons.

Weaponry consists of special halberds which can deliver either a short jab (usually enough to despatch a peasant) or a longer, more powerful thrust. This is achieved, *R-Type* style, by holding down the Fire button to 'save up' power.

These more powerful thrusts might be a little over the top for the peasantry, but you'll need them when you come up against the Generals. These are mounted on horseback, just like your own men, and are just as tough. With a bit of practice, though, these can be disposed of too.

Apart from their weapons, the Hans also have magic on their side. Now and again you get a 'tactics' option flashing up on screen, and this gives you the chance to cook the enemy with a firestorm or flatten them with a rockslide.

There are eight levels to get through, but each of your warriors has only one life. This doesn't mean they cash in their chips with the first hit, though. Instead, an energy bar indicates how tough they're feeling, and gets depleted with every hit they take.

So far so good. The only misgivings revolve around those peasants. They're too weak and there are too many. There's a real danger you'll get bored with killing. And when the action gets hectic, all those peasants, generals and Hans end up in one huge, confusing melee.

Fans of Japanese *Akira* comics will love *Dynasty Wars*. It features some really good cartoon images before the action, and the graphics are both unusual and atmospheric.

Ultimately, though, it's all a bit patchy. Just a little more work on the gameplay after doing such a great job with the visuals, would have turned a good game into an excellent one.

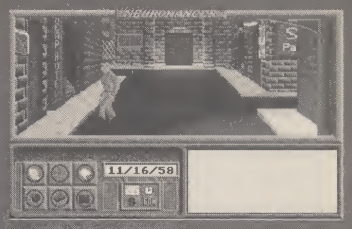
***Dynasty Wars* is available at the cost of £9.99 on cassette, £14.99 on disk.**

• Dynasty Wars: *could have been great, but it is still very good.*

YOUR FORMAT

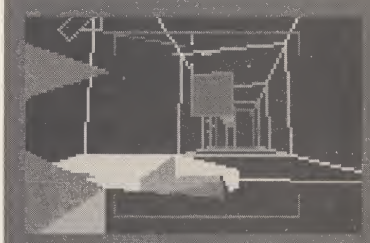
MACHINE SPECIFIC COLUMN

Amiga 8



• Neuromancer: *a sci-fi fan's delight.*

ST 10



• The Magic Fly *blockbuster: buzzing out.*

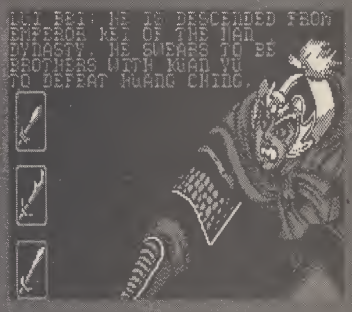
Spectrum 12

SAM Coupé 12

PCW 12

MSX 12

CPC 13



• *There are truly excellent Akira-style graphics in* Dynasty Wars.

QL 14

BBC 14

Archimedes 14

C64 14

PC 16

C64

CHEAP CHEAP

After finding a nicely inexpensive source of software for you the other week, you'll be pleased to know that another one has been brought to my attention.

The company in question is called Capri Marketing, and it has extensive supplies of extremely cheap C64 software on offer. From what I've seen so far it will be the adventure fan with a cassette deck who stands to benefit the most (*Twin Kingdom Valley* on tape for a mere 99 pence for example), but I'm sure there is plenty to satisfy even the most ardent of arcade fans.

Write to Capri Marketing at 9 Dean Street, Marlow, Bucks SL7 3AA.

ALL PLAY AND NO WORK

Some of you might get the impression that this column provides news and information of a slightly less-than-serious nature. I do all the work, and you get all the pleasure.

Now for a change of direction and the chance to a) exercise the old grey matter, and b) achieve fame and fortune. Well, a spot of fame, anyway.

I'm looking for the shortest solution to this programming problem. The numbers 1 to 15 are to be randomly placed on four horizontal squares: 1-5-9-13 for instance. We require one hundred different random permutations.

The problem? We don't want to see more than the same two numbers in ANY of the hundred permutations. In other words, 1-5-9-13 and 1-5-10-14 are OK (only 2 numbers repeated), but 1-5-9-13 and 1-5-9-14 are not (3 numbers repeated). Switch on, start programming and you know the address!

MORE POKES

In *Exelon*, `POKE 7427, 205:SYS 2061`. In *Crazy Comets*, `POKE 40362, 252:SYS 24882`. In *Tiger Road*, `POKE 5749,165:SYS 14848`. And in *Karnov*, `POKE 32991, 165: SYS 32768`.

Pete Gerrard

MORE WORK

The secret of life, the universe, demo programs and arcade games, is interrupts. To answer a query, we'll (very quickly) explain the bare bones of this in two easy lessons.

Take a break from writing a program to sort out the above, and load in an assembler. Enter the following short program at address $C000:

```
C000 SEI
C001 LDA *SCO
C003 STA $0315
C006 STA *$0D
C008 STA $0314
C00B CLI
C00C RTS
C00D JMP $EA31
```

If you now SYS 49152 (which is C000 in decimal), absolutely nothing happens. But it will do next week! All will be revealed, so place your orders.

QL

REBEL FROM RENEWAL

Rebel Electronics has upgraded the firmware in its hard disk interface for the QL. The upgrade is free, and is primarily to fix a few bugs that have materialised now that the unit has been in production for some months.

Rebel has in fact been a spare time activity, and the individuals behind it are looking for someone to take over the business. The QL user group Quanta has been mentioned as a possible buyer, but a formal approach hasn't been made, according to Quanta chairman Syd Humphries.

Rebel Electronics Ltd is at 12 York Place, Leeds LS1 2DS. You may phone 0757 86630 or 0904 708073.

SD MICROSYSTEMS

SD Microsystems has sent me details of its range of business software for the QL. Packages available include *General Ledger* at £19.95 and *Stock Accounting System* (SAS) at £39.95

I was interested to see that SAS can make use of the QL's networking feature, enabling a low-cost multi-user office system to be developed. Contact SD Microsystems at PO Box 24, Hitchin, Herts; phone 0462 675106.

FLARE AVP

Another new chip that could prove very useful in a QL clone is the Flare Technology Ltd AVP. The AVP is a large ASIC (Application Specific Integrated Circuit) containing graphics and sound processors, a video generator, colour palette, audio DACs, memory controller and floppy disk controller.

Although designed to use an 8086 as the host processor, the AVP could be interfaced to a 68000 family device quite easily.

A QL clone using the AVP could have the following specification: 1Mb of RAM, a high performance graphics processor delivering 4,096 colours and up to 512x256 pixels, a 12MIPS RISC sound processor giving Compact Disc quality, and a floppy disk drive. The manufacturing cost could be lower than £200!

Interestingly, one of the designers of the AVP is John Mathieson, who had a hand in the design of the QL.

John Torofex

ULSTER GROUP

The Northern Ireland Quanta sub-group has written to me with the news that Quanta is alive and well in Northern Ireland, in spite of rumours to the contrary. Nothing to do with me -- I didn't even know of the group's existence before they wrote to me!

Meetings are held on the last Saturday of each month at 1430, except when it clashes with a Bank Holiday weekend. The venues vary, so phone for details. The contact is Billy Turkington at 'Fairyhill", Rostrevor, Newry, Co Down BT34 3BB. You may phone 06937 38567.

BBC

CHAOS THEORY

Today, the fashionable phrase is chaos theory. I'm talking about the strange way in which insignificant occasions sometimes have a much greater effect on later events than would be believed.

For example in 1982 Fred Daly and Bob Bum, educationalist and mathematician respectively, spoke on the phone. Subject was the lack of decent software.

Fred had an interest in the work of Escher on repeating patterns, and Bob supplied the algorithms. The result was first *Tesselations* in 1984 and latterly *Frieze* and *Kaleidoscope*, launched at Homerton college in Cambridge.

All three programs, and others such as *Image*, follow an ethos vastly different from that of the government with its restrictive National Curriculum.

Take *Frieze* as an example. It is a program that applies symmetry and rotation to simple objects drawn on screen. Such a description gives no hint of the creative possibilites that such a program provides, but the multifarious examples given in the manual of classroom experience tell a different story.

Everything from Christmas cards to screen printing, to knitting patterns was attempted by children from a wide range of ages.

With this program the teacher should not feel shut out either, as unlike many other computer programs, the teacher remains central to the process of learning.

ESM, the publishers (phone 0223 65445) should be congratulated.

Andrew Brown

ARCHIMEDES

OVATION GESTATION

After last week's plug, BEEBUG was good enough to send through a review version of *Ovation*, which is still in pre-release form. Any purchaser buying the current version will receive a finished copy when the product is finalised.

The current release doesn't include the spelling checker or auto-hyphenation dictionary, though these are only available on Arcs with 2Mb or above, anyway. Also missing are some fonts styles, such as Narrow, and text import from anything but ASCII files.

What you do get is a very competent DTP package. It loads onto the icon bar in true RISCOS fashion, and opens up to a full screen window by default, with a set of five tools embedded in the bottom bar of the frame.

These tools govern text insertion, creation of text and picture frames, line drawing and frame linking. The principal frame on each page is linked by default to the principal frame on the next page, so text can be made to flow automatically through a document.

A deal of clipart is supplied with *Ovation*, new and sourced this side of the Atlantic. There's even a nice *!Draw* file of an Arc itself.

All is supplied as a series of *Ovation* documents, though, to save space, so you need to extract the clips as *!Draw* files before you can import them. This is best done by copying them to the *Ovation* clipboard and from there to the picture frame on the page.

Text can be manipulated through the use of paragraph styles, or by selecting size, weight and format directly from the single, main *Ovation* menu.

Impression doesn't allow you to do this, and although it's a subjective advantage, it's one that I find particularly useful. If you're putting together a flyer which is never likely to be repeated, it's annoying to have to set up styles to produce the text. It's best to have both techniques available, as here.

Ovation looks good – I hope to write more about it in its finished form, perhaps in a head-to-head with *Tempest*, which has still to show.

DIP A DEE DO DAH

Stephen Mansfield wrote to try and help Chris Eason with his Panasonic KX-P1081 problem – odd text characters printed at the bottom of *Impression* pages.

He suggests flicking dip switch 2 on the printer to turn off the paper-out detector. Stephen says this cured the problem, though in Stephen's case it was with *1st Word Plus*.

I have a feeling Chris has already tried this solution, but is not happy about printing all over the printer platen when the paper runs out. Nonetheless, it does tend to support the theory that it's a printer problem and not one exclusive to *Impression*.

MIND YOUR BALLS

What's the most hardworking piece of equipment in your Arc setup? I'd lay odds its your Acorn mouse, and more particularly the mouse ball which rolls around all day on dining room tables, coffee-stained desks and those horrible hairy mouse mats that are given away with packs of budget disks.

May I humbly suggest that you clean the poor things' ball occasionally. It'll save you a lot of grief in the long run, and it will prolong the serviceable life of your mice.

Remove the ball by unscrewing the cross-head screw on the base of the mouse and then wash the plastic-coated sphere in warm soapy water, nothing too stringent. Dry it thoroughly on a lint-free cloth, not the blanket the cat uses at night. Do this every six months and your mouse should remain a happy rodent.

Bertrum Carrot

KENT GROUP

Stephen also mentioned his local Arc group, The Archimedes Kent User Group, which has been running for around six months and is sponsored by Microfix of Canterbury.

If you'd like to contact the group, write to Mr Antony Hunt, Ashlea House, Biddenden Road, St Michaels, Tenterden, Kent TN30 6TA.

Stephen supports the cause of more space in *Express* dedicated to the Arc. A page and a half a month isn't bad, but perhaps I can bend the editor's ear – whadya mean, they're bent enough?

THE ATARI ABC

Now, there's a PC-AT compatible that not only solves problems like other AT compatibles, it also solves the one problem that its predecessors have created ... affordability.

Silica Systems are pleased to present the new Atari ABC. The ABC is a 286 AT compatible that runs at over 5 times the performance of the IBM XT. This is achieved by combining the power and speed of a 16-bit 286 processor, with Atari Corp's development experience and engineering capabilities, which use the very latest in design technology. However, the Atari ABC's are available at 'XT prices' and many XT owners will wonder why they paid more, but got less!

The ABC is a reliable, high performance computer, built to exceptionally rigorous standards. It is well designed, to a state of the art specification, maintaining maximum expansion capability for the future. This includes up to 4Mb of RAM and 3 AT expansion slots. Plus, unusually for a PC at this price, the ABC has the ability to install two or three extra drives, with the cabling already inside the CPU.

The ABC has a host of impressive features, all built-in as standard, encouraging simple installation and ease of use. In addition, the ABC's small footprint and quiet operating, mean that you will notice it less on your desk than other PC's. Except, of course, when you begin to take advantage of its AT power.

At its remarkably low price point, the ABC is ideally suited for home, office and educational use and will take full advantage of the vast range of PC compatible software. And, with 12 months FREE on-site maintenance (8 hour response), you can rest assured that your ABC will be fully supported.

The ABC is the latest addition to a comprehensive range of both 286 (8Mhz or 12Mhz) and 386 (16Mhz and 20Mhz) PC's, from the Business Systems Division of Atari Corp. Atari's PC range offers an unsurpassed combination of reliability, compatibility and expandability, with unique features like Atari's 44Mb removable hard disk on their PC4. Return the coupon NOW for further details of the complete range of PC products from Atari's Business Systems Division.

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AVAILABLE: JUNE 90

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PC

ALL THE WORLD'S WORDS

It's all down to word processing this week, with details of another package flopping through the letter box.

Universal Word appears to be a major competitor for the likes of *LocoScript* and *VuWriter* in coping with just about any language in the world.

It does all this on screen and in full colour, too. It comes from the WYSIWYG Corporation of Culver City, California, and certainly seems capable of showing Russian, Greek, Japanese and Arabic in all their respective glories.

Using sets of scalable fonts, the basic English-only version can show several typefaces in lots of windows and in multi-colours. If you have a colour printer it seems capable of printing those colours out, too.

The program offers full search and replace, block moves and all the other goodies associated with word processing, but it is the strength of its special character handling and the speed with which it can do it that will make or break the program.

The basic version will probably cost under £300, and when I get a copy from Keyword Software (you may phone 09424 1172) for review, I'll write more.

UNLESS YOU KNOW BETTER

Have I discovered the cheapest source of individual 720K 3.5-inch disks in Brighton Computer Supplies (BCS to its friends)?

From this source I can get bare disks for 39p each, plus £2.50 carriage.

You can quote Access or Visa over the phone and the disks normally come the following day. BCS is on 0273 506269.

Labels for said disks are best picked up on the Industrial Process stand at computer shows. You can usually get a roll of 500 for between £5 and £10 from this source.

BIGGER BOXES

The other major product to arrive this week has been the release version of GST's *DESKpress*. This is the upgraded*Timeworks Publisher* product which I've covered briefly in previous columns.

It extends the features you've come to know and love in *Timeworks* in ways that office users, and many home users, will find very attractive. You can now flow text round shapes and create indexes and contents tables.

Perhaps the biggest surprise is the size of the box, though. Gone is the delicate slip-sleeve design of the original and we're now into mega-presentation.

The tasteful green box measures a full 26cm x 22cm x 22cm, which beats anything else on my shelves including *PageMaker* and *Ventura*. Where are the casters on the bottom? Where's the reassurance that the packaging's recycled?

Inside the box is a well for the disks; GEM again outnumbers the *DESKpress* – by seven to one. Next to that is space for the three massive spiral-bound manuals.

GST has certainly cut no corners here, as there are separate tomes for installation, reference and use of the Typographica fonts, the Prime Collection of which is included with the product.

I haven't had time to put the final version to the test yet, but it promises to be the heavyweight desktop publisher which the packaging so strongly suggests.

UPGRADE INSTALLATION

There's always a tinge of worry when you're upgrading a piece of software to the latest version and you have the old one well and truly integrated into your system.

TopCopy Plus has long been my word processor of preference and my TCPLUS directory contains several files I need to refer to from other document directories. It's also the root of a document directory tree, which I really don't want to disturb.

Before installing *TopCopy Professional* (see Leader of the Gang), therefore, I dutifully moved all the files I needed to retain to a spare floppy, including the auxiliary spelling dictionary which I'd built up over the past couple of years.

I then deleted all the *TopCopy Plus* files so the directory was clear, with just the document sub-directories hanging off it.

Then I ran the installation program, only to find that the whole thing was installed in a new sub-directory, called TCPRO. Logical, really, and it certainly saves overwriting existing files.

All I then had to do was to copy the *TopCopy Pro* files back into the TCPLUS directory and rename the directory to TCPRO – a function which TopDOS was more than happy to take under its wing.

Copying the files back from my temporary floppy completed the process and Robert's your mother's brother. If they were all so civilised...

MDM FOR MOVIES

There's a lot you can do with batch files, and one of the most useful is to customise DOS to your own working methods.

Simply by combining existing commands, you can produce a version of DOS which ties in far more closely with the way you need to do things.

Here's a short batch file – it could hardly be shorter – which I use nearly every day:

```
MD %1
CD %1
```

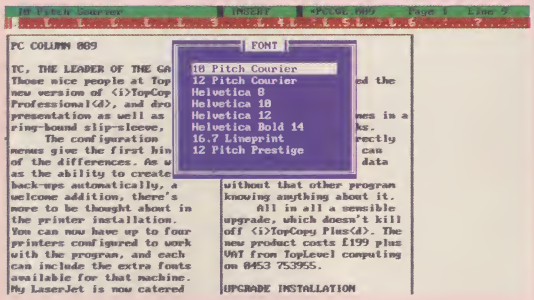
The file, which I call MDM.BAT, creates a new sub-directory and *moves you into it.*

How many times have you created a new directory without wanting to put some files into it as the next step? Not many, I'll wager.

There must be dozens of very simple batches like this. Why not send in your favourites so I can pass them on to others? It would mean nothing short of easier working lives all round.

Simon Williams

LEADER OF THE GANG



Those nice people at TopLevel computing have completed the new version of *TopCopy*, referred to as *TopCopy Professional*, and they have dropped me a copy. Revamped in presentation as well as function, the new version comes in a ring-bound slip-sleeve, on 5.25-inch and 3.5-inch disks.

The configuration menus give the first hints of the differences. As well as the ability to create back-ups automatically – a welcome addition – there's more to be thought about in the printer installation.

You can now have up to four printers configured to work with the program, and each can include the extra fonts available for that machine. My LaserJet is now catered for with any of the 23 HP font cartridges, though I can only use two at a time, which precludes the use the super cartridges now on the market.

The program can also handle columns of text, either snaking or parallel, which makes it much more versatile than its predecessor. Most of the controls are similar to earlier versions, though some of the functions keys now call up short menus, rather than executing a function directly.

For example, the three block commands move, copy and delete used to be on [F3], [F5] and [F7]. They're now all available from a menu on [F3], with [F5] offering a format menu and [F7] so far unused.

***TopCopy Professional* has grown a bit from earlier incarnations, but its 115K file length can still be installed as a pop-up word processor, one of its biggest advantages. You can still run it alongside other applications. You can still import text from the underlying screen directly into a document. You can still mailmerge with data from another program without that other program knowing anything about it.**

All in all a sensible upgrade, which doesn't kill off *TopCopyPlus*. The new product costs £228.85 from TopLevel Computing, which can be reached on 0453 753955.

CENTURION

PC GAME of the WEEK

Electronic Arts • £24.99

Arabia
their lack of courage.
Mamud the Terrible, the leader of Arabia, offers a greeting:
"We will admit this envoy of Rome to our presence. But only for a moment."
"We come in friendship."
"Most unlikely. Try another approach."
Yes, this is most entertaining!"
Diplomatic
Aggressive
Offer Alliance

It's the subtitle, *Defender of Rome*, that gives the game away. Co-author Kellyn Beck was also designer and project director for Cinemaware titles *Defender of the Crown* and *Rocket Ranger*, and it shows.

***Cinemaware* is, for me at least, a relatively unsuccessful attempt at re-creating the cinema classics. *Defender of the Crown* won acclaim for its graphics when it appeared on the Amiga some years ago, but underneath the pretty pictures was a pretty basic game backed up by a couple of distinctly facile arcade sequences.**

***Rocket Ranger* was better, reviving the atmosphere of the Saturday matiné serials, but again gameplay was pretty poor. This time it's the thrills and spills of Ben Hur.**

The formula is much the same. You start out with a map of the Roman world from Aegyptus to Britannia, a single legion based in Rome, and precious little money. Improving your status requires money, and money comes from tributes paid by conquered provinces; so you move your legion into the Alpes. You are offered a chance to negotiate, but get turned down almost all the time, so there's nothing for it but war.

The battle scenes seem the most complicated as you select tactics and even command individual units against the enemy. As the men move convincingly on the field, however, it soon becomes apparent that, unless you make major mistakes, the outcome is largely decided by weight of numbers and is heavily biased in your favour. Other sequences involve chariot races, gladiator events and sea battles – but these are pretty trivial.

***Centurion*'s redeeming factor is the 256-colour graphic displays it manages on a VGA monitor. Particularly spectacular are the map, the battle sequences and the amphitheatre, although whether this makes up for the lack of gameplay is another matter.**

Matt Nicholson

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★ 1 IBM Centronics Parallel Port
★ IBM Games Adaptor/Joystick Port
★ IDE Hard Drive Interface/Tape Backup Interface Port
★ Battery Backed Real Time Clock/Calendar
★ 1024x768 SVGA Card 512Kb RAM
★ High Res Mono Monitor
★ DR-DOS Operating System

	VGA P/W	SVGA PW	VGA	SVGA 1024
As Above	£3145	£3245	£3345	£3495
45Mb 25ms*	£3495	£3595	£3695	£3845
100Mb 18ms*	£3695	£3795	£3895	£4045
180Mb 18ms*	£3845	£3945	£4045	£4195
330Mb 18ms	£4445	£4545	£4645	£4795

Options for 486/25:
1Mb RAM Upgrade Modules £85
Mouse w/Driver Software £35

£795! 16MHz 386/SX

DOLAN SX STANDARD FEATURES

★ 100% IBM Compatible (DOS/Novell/Unix/Xenix/OS-2)
★ 16MHz CPU 80386sx (20MHz optional)
★ Landmark 0.99 speed 20MHz (20MHz version 26MHz)
★ 1Mb RAM (expandable to 8Mb on board)
★ Small footprint desktop case with 200W PSU
★ 8 Expansion Slots (6x16 bit 2x8 bit)
(6 free fully configured 4x16 bit 2x8 bit)
★ 102 key keboard U.K. keycaps
★ 1.2Mb 5.25" and 1.44Mb 3.50" Floppies
★ 2 RS-232 Serial Ports (1x9 pin 1x25 pin)
★ 1 IBM Centronics Parallel Port
★ IBM Games Adaptor/Joystick Port
★ IDE Hard Drive Interface/Tape Backup Interface Port
★ Battery Backed Real Time Clock/Calendar
★ 1024x768 SVGA Card 256Kb RAM (expandable to 512Kb)
★ High Res Mono Monitor
★ DR-DOS Operating System

	P/W	SVGA PW	VGA	SVGA 1024
As Above	£795	£895	£995	£1145
45Mb 25ms*	£1145	£1245	£1345	£1495
100Mb 18ms*	£1345	£1445	£1545	£1695
180Mb 18ms*	£1495	£1595	£1695	£1845

Options for 386/SX:
20MHz CPU Upgrade £75
1Mb RAM Upgrade Modules £85
Math Co-Processor £250
Mouse w/Driver Software £35

£399! 12MHZ XT

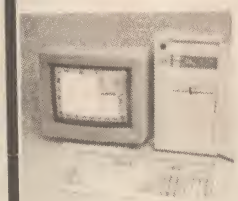
DOLAN XT STANDARD FEATURES

★ 100% IBM Compatible (DOS/Novell)
★ 12MHz CPU V20 (switchable to 4.77MHz)
★ 640Kb RAM (expandable to 1Mb on board)
★ Small footprint desktop case with 200w PSU
★ 8 Expansion slots (5 free fully configured)
★ 102 key keboard U.K. keycaps
★ 360Kb 5.25" Floppy Drive
★ 2 RS-232 Serial Ports (25 pin)
★ 2 IBM Centronics Parallel Ports (VGA 1 only)
★ IBM Games Adaptor/Joystick Port
★ Battery Backed Real Time Clock/Calendar
★ Hercules Graphic Card & High Res Mono Monitor
★ DR-DOS Operating System

	MONO	P/W	EGA	VGA
As Above	£399	£444	£625	£725
40Mb 40ms	£599	£644	£825	£925

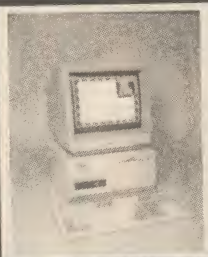
Options for XT:
720Kb 3.50" Floppy Drive £65
360Kb 5.25" Floppy Drive £50
640Kb to 1Mb RAM Upgrade £45
Math Co-Processor £135
Mouse w/driver software £35

LEASING TERMS AVAILABLE



£1095! 25MHz 386

DOLAN 386/25 STANDARD FEATURES



★ 100% IBM Compatible (DOS/Novell/Unix/Xenix/OS-2)
★ 25MHz CPU 80386dx
★ Landmark 0.99 speed 36MHz
★ 1Mb RAM (expandable to 16Mb on board)
★ Small footprint desktop case with 200W PSU
★ 8 Expansion slots (6x16 bit 2x8 bit)
(6 free fully configured 4x16 bit 2x8 bit)
★ 102 key keyboard U.K. Keycaps
★ 1.2Mb 5.25" and 1.44Mb 3.50" Floppies
★ 2 RS-232 Serial Ports (1x9 pin 1x25 pin)
★ 1 IBM Centronics Parallel Port
★ IBM Games Adaptor/Joystick Port
★ IDE Hard Drive Interface/Tape Backup Interface Port
★ Battery Backed Real Time Clock/Calendar
★ 1024x768 SVGA Card 256Kb RAM (expandable to 512Kb)
★ High Res Mono Monitor
★ DR-DOS Operating System

	P/W	SVGA PW	VGA	SVGA 1024
As Above	£1095	£1195	£1295	£1445
45Mb 25ms*	£1445	£1545	£1645	£1795
100Mb 18ms*	£1645	£1745	£1845	£1995
180Mb 18ms*	£1795	£1895	£1995	£2145

Options for 386/25:
1Mb RAM Upgrade Modules £85
Math Co-Processor £350
Mouse w/Driver Software £35

£1845! 33MHz 386

DOLAN 386/33 STANDARD FEATURES

★ 100% IBM Compatible (DOS/Novell/Unix/Xenix/OS-2)
★ 33MHz CPU 80386dx with 32Kb on-board Cache
★ Landmark 0.99 speed 58MHz
★ 4Mb RAM (expandable to 16Mb on board)
★ Desktop tower case with one-piece door with 220W PSU
★ 7 Expansion Slots (5x16 bit 2x8 bit)
(5 free fully configured 3x16 bit 2x8 bit)
★ 102 key keboard U.K. keycaps
★ 1.2Mb 5.25" and 1.44Mb 3.50" Floppies
★ 2 RS-232 Serial Ports (1x9 pin 1x25 pin)
★ 1 IBM Centronics Parallel Port
★ IBM Games Adaptor/Joystick Port
★ IDE Hard Drive Interface/Tape Backup Interface Port
★ Battery Backed Real Time Clock/Calendar
★ 1024x768 SVGA Card 512Kb RAM
★ High Res Mono Monitor
★ DR-DOS Operating System

	VGA P/W	SVGA PW	VGA	SVGA 1024
As Above	£1845	£1945	£1995	£2145
45Mb 25ms*	£2195	£2295	£2345	£2495
100Mb 18ms*	£2395	£2495	£2545	£2695
180Mb 18ms*	£2545	£2645	£2695	£2845
330MB 18MS	£3145	£3245	£3295	£3445

Options for 386/33:
1Mb RAM Upgrade Modules £85
Math Co-Processor £450
Mouse w/Driver Software £35

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THE SHOPPING EXPRESS BUYERS' GUIDE TO AMIGA ESSENTIALS

Although the Amiga is often regarded as the best machine for games and graphics, it has a much wider range of capabilities. It can produce excellent sound and can handle everything from word processing and databases to desktop publishing and video titling.

The Express Guide to Amiga essentials will take you through the best buys for your Amiga and help you plough through the seemingly infinite range of useful utilities and breathtaking games, so that you can get the most out your all singing, all dancing computer.

WORD PROCESSORS

● PROTEXT

Arnor 0733 68909
£99.95
It's fast and easy to use – has a good spellchecker and even has a calculator built in for doing tedious sums. Text can be viewed in WYSIWYG mode too. Keyboard can be configured to execute a stream of commands at the press of a key.

▲ Word count, many block commands and calculator
▲ Powerful spellchecker
▲ Can work on two documents simultaneously

▼ Not beginner-friendly

● KIND WORDS

Amiga Centre Scotland 031-557 4242
£49.00
Produces the best printer output of any word processor on the Amiga thanks to special output modes which simulate near letter quality. Has lots of good printer drivers to exploit even the most simple of printers.

▲ Excellent printer output
▲ Graphics can be imported

▼ Lacks a word count unless you spell check

● SCRIBBLE

HB Marketing 0895 444433
£99.95
A simple to use word processor with spell checker and mail merger. Reformats text as you type. Although it lacks graphical functions, its simplicity makes it an excellent word processor.

▲ Simple to use
▲ Mail merge and spell checker

▼ Can't import graphics

● WORDPERFECT

Sentinel
£293.25
A hefty 500 page manual teaches you how to use *WordPerfect*. A huge spellchecker dictionary and a thesaurus add to the bundle. Can call up a command line interpreter from within the program.

▲ *WordPerfect* is used on many machines so it's useful if you're familiar with it

▼ Expensive otherwise and lacks graphical commands

SPREADSHEETS

● SUPERPLAN

Precision 081-330 7166
£99
Comes complete with a tutorial disk to help get you started – all the functions you're likely to need in a spreadsheet and also has excellent graphics display which makes data more digestible

▲ Macro language allows keyboard configuration
▲ Plenty of graphics functions
▲ Good find/replace database facilities

▼ Requires 1Mb of memory
▼ Awkward to use because of poor use of menus

DATABASES

● SUPERBASE 2

Precision 081-330 7166
£99.95
Simple to use, even for a beginner. Data can be imported from other files easily. Excellent data validation and useful help messages can be included. Mail merge facilities.

▲ Excellent tutorial files
▲ Graphics can be included and saved with the database

▼ Not cheap

● SUPERBASE PROFESSIONAL

Precision 081 330 7166
£249.99
The most powerful relational database available. Designed beautifully so that setting up a database is simplicity itself. Also incorporates a 200 command word programming language.

▲ No limit to field size or number of records
▲ The Rolls Royce of databases

▼ Even less cheap

DESKTOP PUBLISHING

● PROFESSIONAL PAGE V1.2

HB Marketing 0895 444433
£129.95
Produces PostScript compatible files for use by laser printers and typesetting bureaux – can also produce colour separations. English, French and Spanish dictionaries in the spellchecker. Five magnifications including life size and 200 per cent. Probably the best and most sophisticated DTP package on the Amiga.

▲ PostScript compatible files
▲ Colour separations can be created
▲ Three dictionaries

▼ Requires 1Mb of RAM
▼ Two drives strongly recommended

● SHAKESPEARE

Cloudhall Ltd 0604 231 2111
£99
Clear and informative manual. Produces colour pages directly on colour printers. Has some problems with large documents so best used on single pages. Graphics can be imported and each retains it's palette. PostScript compatible.

▲ Ideal if you have a colour printer
▲ IFF file import

▼ No magnify function
▼ PostScript output is only in grey scale
▼ Graphics can't be edited on the page

● PUBLISHERS CHOICE

HB Marketing 0895 444433
£99.95
A combination of three programs: *Pagesetter*, *Laserscript* and *Kindwords*. The latter is a word processor with both a spellchecker and thesaurus – just in case you get lost for words. *Laserscript* is a utility for converting *Pagesetter* files to PostScript format and printing them. *Pagesetter* includes a mini graphics package to help the page creation process. Excellent manual.

▲ Includes powerful word processor – *KindWords*
▲ PostScript compatible
▲ Graphics capabilities in Pagesetter
▼ Font and hyphenation information not imported with text

➤

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AMIGA HARDWARE

Amiga 500 + Batman Pack & 5 games, joystick £345.00
New Amiga Flight of Fantasy Pack - £317.00

AMIGA BATMAN PACK £317

New from Amiga
Includes: TV modulator, 3.5" Disk Drive with Amiga DOS Kickstart, Workbench and Batman The Movie game, F18 Inceptor, Paint 2, New Zealand Story.

AMIGA ACCESSORIES

Inc. database, spreadsheet, WP, music, art & design, logo and BBC emulator.

Amiga Class of the 90's.....£439
Amiga A501 RAM pack + Clock (original).....£85
Amiga joystick £10
TV Modulator.....£15
Phillips CM8833 colour monitor + lead £199
Phillips BM7502 12" green monitor.....£79
Phillips BM7522 12" amber monitor.....£89
Amiga To Philips cable £8

AMIGA DRIVE

1 Meg 3.5" external.....£68
1 Meg 3.5" internal £63
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ATARI DRIVES

1 Meg 3.5 external.....£68
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ATARI COMPUTERS

520 STFM Discovery Pack.....£248
520 STE Power Pack.....£325
1040 STE.....£378

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Atari Scanner.....£169
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Citizen 180E.....£127
Swift 24 .....£255
Colour upgrade for Swift £42

MANNESMAN TALLY

Mannesman MT 81 Dot Matrix.....£115
Mannesman Sheetfeeder.....£62
Mannesman Serial Interface £49

REPAIRS FOR AMIGA AND ATARI

● CITY DESK

Precision 081-330 7166
£150
A very powerful DTP package, but suffers a little from unfriendliness. Style codes are imported when the text is. Includes a simple graphics editor which can be used to create or edit IFF files for use on the page.

▲ PostScript output is supported
▲ Text can be edited on the page

▼ Lacks a WIMP environment

● PAGESTREAM

Silica Systems 081-309 1111
£171.35
Text can be flowed around graphics in most DTPs, but *Pagestream* has the edge in that respect – text can be flowed in many ways. Magnification is not limited to five sizes – you can work at virtually any magnification.

▲ Flexible text flowing
▲ Large and easy to edit spell check dictionary

▼ Difficult to produce colour separations

GRAPHICS

● PHOTON PAINT 2

Microillusions 0703 703030
£89.95
Art package capable of producing HAM images. Comprehensive set of tools allowing re-scaling, flipping, rotation, bending stretching and much more.

▲ Wide range of tools for image manipulation

▼ But some are very slow to use

● DIGIPAINT 3

Newtek/Precision 081 330 7166
£69.95
HAM art package with facility to create images up to 1024 by 1024 pixels – the only limitation being memory. Good text entry system which uses a buffer. Text is manipulated before it's put on screen as a brush. Friendly interface between package and user

▲ Good text manipulation
▲ Huge images possible

▼ No fill or airbrush
▼ Awkward magnify mode

● DELUXE PAINT III

Electronic Arts 0753 49442
£79.95
Excellent art package that allows use of full overscan and extra halfbrite screens. Simple animations can be created too – very easy to do. Stencil mode stops you from accidentally airbrushing over the wrong part of the screen.

▲ Perspective fill
▲ Halfbrite Mode
▲ Full overscan screen

▼ 1 Mb required
▼ HAM not supported

● FANTAVISION

Domark 081 780 2222
£39.99
Uses polygons to create animated objects and relies on tweening to create the illusion of movement. Full colour IFF files can be imported to make up the background scenery.

▲ Fast animated sequences that don't eat up much memory
▲ One object can be easily transformed into another

▼ Objects are silhouettes

● MOVIE SETTER

HB Marketing 0895 444433
£69.95
Uses a series of sprites to create animations which are more cartoon like in nature than Fantavision. Sprites can be brushes created with most art packages – they're in IFF format. Storyboarding makes it easy to use and see what's going on. Animation can be played, rewound and stepped through frame by frame.

▲ Minor changes to productions can be viewed instantly
▲ Sound is easily integrated

▼ Works best with 1Mb
▼ Eats up memory if not careful

● PIXMATE IMAGE PROCESSOR

£43
Allows pictures to be transformed from one form another – HAM can be reduced to 32 colour pictures for example. Images can be cleaned up, defocused, squashed or stretched.

▲ Converts images from one format to another
▲ Wide range of cleaning options

▼ But who the hell distributes it?

● X-CAD

Commodore 0628 770088
£199.95
Very fast re-drawing of images. Has great potential in the range and qualities of images that it can produce. Hardware requirements mean that you must be very serious about your CAD to justify buying it.

▲ Best CAD package available
▲ Fast
▲ Comprehensive

▼ Needs 2Mb
▼ Better with hard drive

● INTRO CAD

HB Marketing 0895 444433
£59.95
Extensive colouring routines enable realistic and detailed objects to be created. Easy to include text too. Ideal as an introduction to CAD

▲ Simple to use and much cheaper than X-CAD
▲ Excellent results can be obtained with a bit of skill

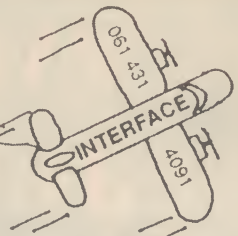
▼ Not as comprehensive as other packages

● SCULPT 4D

Amiga Centre Scotland 031 557 4242
£368
Creating 3D ray traced animations can be very satisfying, and Sculpt 4D is an excellent tool for doing just that. Adding text to the animations is ➤

INTERFACE SOFTWARE

COMING TO EARTH PRICES



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INC: 512K RAM, Internal Power Supply, built in 1Mb disc drive, built in T.V. Modulator, Mouse, Joystick
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(worth over £100)

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ATARI

INC: 512K RAM, Internal Power Supply, built in 1Mb Disc Drive, built in T.V. Modulator, Mouse **PLUS** First Basic, Neo Chrome Art Package, S.T.O.S. ST Tour, Carrier Command, Outrun, Space Harrier, Bombjack

£299 inc VAT
+ FREE
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MEGAPACK 1 or 2
(worth over £100)

BATMAN PACK

INC:
512K RAM
1 Mb disc drive,
Mouse, T.V. Modulator,
Workbench Software,
Basic Language Disc
AMIGA
Deluxe Paint II
Batman The Movie
New Zealand Story
Interceptor

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+ FREE
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MEGAPACK 1 or 2
(worth over £100)

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AMIGA

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+ FREE INTERFACE, MEGAPACK 1 or 2 (worth over £100)

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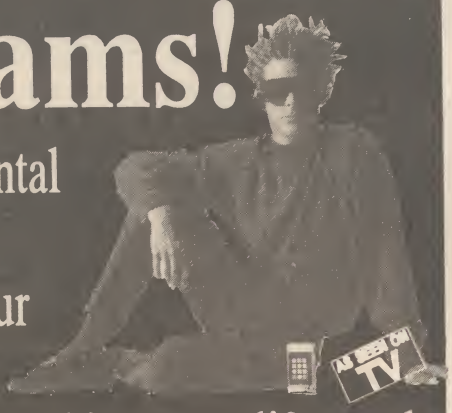

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considerable more easy than in the previous incarnation, Sculpt 3D. Sculpt Animate is also included in the price.

▲ Produces excellent raytraced pictures
▲ Sculpt animate included in the price

▼ Expensive unless you're a real raytracing fanatic

● DELUXE PRINT II

Electronic Arts 0753 49442
£49.95

Drawing masterpieces isn't a problem with art packages, but adding text to images can be. Deluxe Print II is ideal for this though. It's easy to create signs and posters with some lovely large fonts. It even has an automatic calendar generator.

▲ Range of large fonts
▲ Can produce larger-than-screen posters

▼ Doesn't support 24 pin printers

MUSIC

● MUSIC X

SDL 081 300 3399
£230

Combines the features of a sequencer, voice programmer, sampler and MIDI interpreter. Supported by an excellent manual. The most comprehensive and competent music package available.

▲ 255 tracks possible
▲ Very detailed
▲ Beats ST MIDI software at its own game

▼ 1Mb recommended

● TRACK 24

Soundbits 021-733 2063
£75

This is a 24-track sequencer with the last two tracks having a special purpose. Track 23 is used for backing chords and track 24 is monophonic and used to play the main melodies or lead lines. Very simple to use and has lots of functions.

▲ 24 tracks
▲ Easy to use

▼ Lacks powerful features

● REALTIME SOUND PROCESSOR

HB Marketing 0895 444433
£84.95

Not only a high quality sound sampler, but also a sound processor too. Add echo, reverb, delay and so on to your sampled sounds and you'll be producing Paul Hardcastle-style sounds in no time at all.

▲ Sound processor for customising your samples

▼ Only 8-bit samples which sound a little hollow

● FUTURESOUND 500

Applied Visions (UK)
£79.95

Simple to use sound sampler with routines to use the samples in your own C or BASIC programs. Manual is easy to read, but may give novices a hard time.

▲ Just plug in and away you go

▲ Provision for including samples in your programs

▼ Manual a little tricky for the beginner

● AMAS

Microdeal 0726 68020
£99.95

Sound can be digitised from a microphone or an amplified source which is unusual in samplers. The results can be played across a midi keyboard too.

▲ Samples can be compressed
▲ MIDI ports included

▼ No facility for using samples in your own programs

● OPUS-1 MCL

Ariadne Software 081 960 0204
£99.95

A computer language designed specifically for musical composition. Can be used by programmers that lack instrument skill. Complex language, but powerful when learnt.

▲ Ideal for the programmer with little musical ability

▼ Complex language to learn
▼ Not cheap

GAMES

● INTERPHASE

Mirrorsoft 071-928 1454
£29.99

Fantastic 3D graphics and a Max Headroom style plot make Interphase a challenging and exciting game. Guide your girl friend through a multi-storey building and retrieve a vital computer disk. Lots to do and not much time to do it in.

● XENON 2

Mirrorsoft 071-928 1454
£24.99

The Bitmap Brothers first produced Xenon which had all the qualities you could ask for in a shoot-'em-up. Xenon II takes the genre one step further to produce the best zap-'em game of the year. Hordes of aliens and a multitude of bolt on weapons to bring the evil Xenites to an end. Sound is as good as the graphics.

● STRIDER

US Gold 021 625 3388
£19.99

An excellent conversion of the Capcom arcade game that has the right mix of killing and thinking to provide a stunning game. As usual you can find extra weapons to help your quest. Beautiful graphics make the game look as good as it plays.

● WATERLOO

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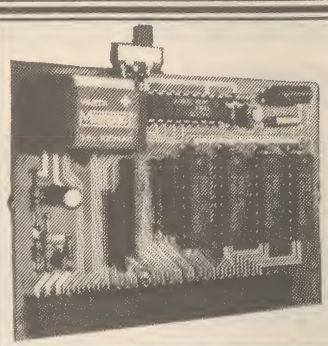

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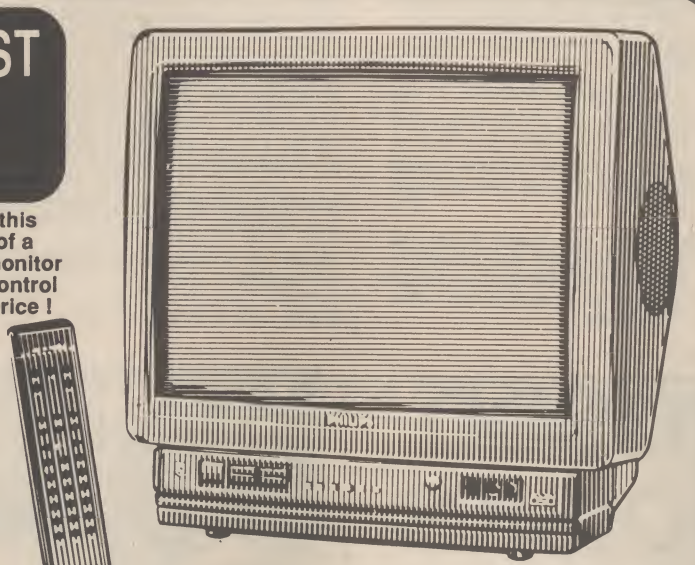

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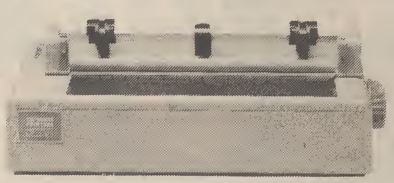

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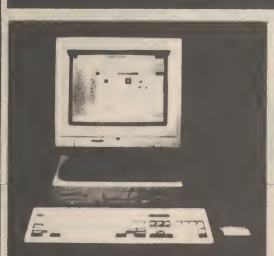

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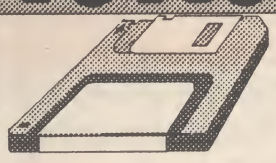

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THE PD COLUMN

Get caught up with the world of PD in this week's installment from that man in the know, Adam Waring. The best offerings for the CPC, the Amiga and the ST served up before your very eyes...

That Scottish source of software has been at it again. Scull PD just sent me another disk crammed full of CPC PD.

Indeed, the library is expanding at a fair old rate, and it now has 28 cassettes in its collection.

Many of the titles are written by the library's proprietor, Alan Scully. Most are in BASIC, but there is the odd smattering of machine code programs available for good measure.

Wales presents you with a small scale map of the country of the same name. The map sits on the left-hand portion of the screen, while on the right there's a menu of features from which you may select.

You can chose to view towns, castles, mountains, rivers, parks and counties. Selecting an option superimposes the details on top of the map.

Everything is displayed in nice crisp high-res mono graphics, making it ideal for green-screen owners as well those lucky enough to possess the highly-regarded colour monitor.

Wales lets you visit the country from the comfort of your armchair. It could be useful for those studying geography – especially if they're Welsh or inclined that way.

IQ Quiz is one of those brain stretching tests you used to take at school. It is comprised of a number of questions set to challenge your grey matter to the limit.

There are various categories, ranging from the 'next number in the sequence' to the 'horse is to stable as man is to...' type of puzzle.

I wouldn't like to vouch for the accuracy of the IQ ratings , but I certainly wouldn't recommend that the results are taken seriously.

IQ Quiz is strictly ensconced in the 'for entertainment only' category.

AMIGA

Page One PD is an Amiga library which has been operating on a small scale in Staffordshire.

Now the good people have taken the plunge – they are going to bring their fare nationwide.

Catalogue details come on many disks. The one I looked at is called Game Disk 4. And, surprisingly enough, as the name suggests, it's packed with games for your machine – 10 in total.

Invaders needs no introduction. It's that old classic, where the graphics and sound are Stone Age, but the game is positively oozing with an extra dose of playability.

You know the scenario. Earth is under attack by evil green mutants, and the only thing standing in their way is you – in your antiquated laser cannon.

Controls are limited to left, right and fire, and the invaders move in a large sheet, from left to right, advancing towards you a line at a time.

For protection a number of shields stand between you and the alien aggressors. These don't last long though – they're soon obliterated by the constant barrage of laser fire.

This version retains everything that the original did. The graphics, sound, and gameplay are faithful to the coin-op cabinet that used to haunt the arcades and pubs so many years ago.

The only noticeable improvement is the colour. Multi-coloured aliens are made available – without having to stick sheets of green and purple cellophane all over the screen!

Reversi won't win any awards for stretching the Amiga to its limits. The counters are square, the colours

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VISA Access

ppalling, but the computer plays one ean game.

I used to consider myself something an expert at *Reversi* – or *Othello* as s better known. Two players take it in rns to place counters on an eight by ght grid.

The idea is to sandwich your oppo-nt's pieces between two of your own. hen you capture pieces in this way, ey are flipped over and become your lour. The winner is the player who minates the greatest area when all the quares have been filled.

There are plenty of options in this me. If you're stuck, you can ask the mputer to show you all the places here you can play.

The program will even suggest a ove for you – but that's cheating. Five vels of play are available. It's preset to id-level, but you can change this at y time, even half way though a game.

Reversi is a strategy game to the vel of something like draughts. This miga program plays very well, and can rtainly give even the most competent ayer a run for the money.

Daleks has become something of a lt game. It's available for just about y computer under the sun. The idea is mple: You are Dr Who. You're sur-unded by daleks.

Every time you move, the daleks move a step towards you. If they collide with each other then they're destroyed. You have to plan your moves so that as many daleks crash into each other as possible.

Needless to say, if the daleks get you, it'll be a coffin, not a Tardis that you'll be travelling home in.

You have a few other tricks up your sleeves. You can teleport at will – though that runs the risk of landing right next to one of the mechanical meanies.

Alternatively, you have your trusty sonic screwdriver. It destroys everything in your vicinity, but its use is strictly limited – you can only use it once per level.

As you progress through the levels, you're up against more and more of Stavros's psychopathic hench-things. It's one of those games which is really simple, really stupid, but great fun all the same!

ST

After Eng-er-land's wonderful performance in the World Cup (fourth place is pretty darn good after all), there must be one or two converted soccer fans out there – myself included.

Now that all the excitement is over for the next four years, you'll have to make do with league football.

Why not put on a little bet while you're at it – just to make the results that little bit more interesting? Not to mention, that little bit more profitable if you do your wagering well

So if you fancy a flutter on the footie, but don't know the first thing about form, why not try *Pools Predictor* from Paradise?

This program has all the necessary statistics to ready it for the start of the next football season.

You can be sure of one thing – it beats picking out the draws with a pin by a country mile.

The program is very easy to use – the whole thing being menu-driven. The number keys allow you to select the desired function.

You can chose to make the predictions on either form or luck. When the actual results come in, tap them into the program, and it'll keep up to date – hopefully getting more accurate as the season goes by.

And if you do win a million on the pools, remember where you read about it first!

WHERE TO GO

• **Scull PD**, 119 Laurel Drive, East Kilbride, Glasgow G75 9JG.

One of the growing number of libraries that offer PD for the CPC, Scull claims that it has the largest selection of cassette-based PD around.

With 28 tapes on the books the good people at Scull could well be right in this department.

To receive one of these cassettes all you need do is send the sum of 50p, along with an SAE, and blank C15 tape. If you're a disk user, then the charge is an exceptionally reasonable sum, namely one pound.

• **Page One PD**, 46 Hillport Avenue, Porthill, Newcastle under Lyme, Staffs. ST5 8JZ. Telephone 0782 635502.

Amiga specialists who have recently expanded to cover the whole of the country, rather than just their local area, Page One PD is relatively small at the moment, but it has plenty of games and demos.

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• **Paradise Computers**, 9 Westfield Cresent, Brighton, Sussex BN1 8JB.

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ADVANCED BOOKING

Books already outnumber people by five to one. Al Baron discovers how the British Library is using Archimedes computers to track down printed information.

By the end of 1997 the vast British Library, one of the world's biggest, will have moved to a new location near London's Kings Cross. Readers will be able to sit at their desks and summon books by computer. Below ground, books will be retrieved by library staff, fed into containerised electric trolleys and transferred to the book delivery desk. When the books arrive, a light will come on on the reader's desk.

Computers were first installed in the British Library in 1976, and readers' terminals can presently access material only later than 1976, but the entire British Library catalogue is now on-line for staff usage, using an Acorn Archimedes-based system. But users can also link up to the On-Line Computer Center (OLCC) in Dublin, Ohio, which in turn offers access to 6,000 other US libraries.

British Library Automated Information Services (BLAISE) uses Acorn hardware, mostly Archimedes machines. The system has had many teething troubles and has been prone to crash at inconvenient moments, often for quite lengthy periods. The software, which was developed by the National Library of Medicine, Bethesda, USA, is called *Elhill* and is used continuously. It is very powerful but supports only about 30 users.

20 MILLION REFERENCES

At the press of a button uses can have a staggering 20,000,000 references at their fingertips covering every conceivable aspect of knowledge from the 15th Century to the present day. *Express* asked Dr Robin Alston, the library's computer consultant, to search for 'computer crime', the subject of a recent *Express* article. The word 'computer' produced 114,493 references, 'computers' a further 39,354. Combining 'computers' and 'crime' reduced it to 15; this could have been expanded by entering further cross references: 'crimes', 'theft', 'fraud' and so on. Of these 15, a number of monographs were thrown up, a video and even an unpublished typescript. All were located in American libraries, but by redefining the search parameters it is possible to locate the same books (if available) in specific states or areas anywhere on the system.

If for example you wanted to locate every book on George Washington located in libraries in the City of New York, OLCC could give you a title and location print out in seconds. Several other European libraries ➤

The new British Library building, which will have eight storeys, will also have four storage basements running to a depth of 24 metres below ground. Manned by 650 staff, the air conditioned building will have 15 kilometres of open access shelving for reference books and a staggering 280 kilometres of closed access material.

THE BRITISH LIBRARY

The British Library is the world's leading reference library and one of mankind's major research institutions. As well as the Bloomsbury Reading Rooms, it encompasses the Science, Reference and Information Services, the National Sound Archives, the British Newspaper Library and several others.

At the Main Reading Rooms in Bloomsbury, the reader would until quite recently have had to search manually through the main catalogue or microfiche for the books they desired, fill out an application form, then hand it in at the reservations desk. If a particular book is kept out-of-house, as many of the less-commonly used books are, they would have to wait until the following day before they could collect it.

This is still largely the case, but the Humanities and Social Science Reference and Information Catalogues from 1976 onwards are now being made available on-line. Although the original computer system was installed some 15 years ago, the catalogue has been available in this form to readers only since last year. As yet the giant Newspaper Library is not yet included on the on-line database.

Initially three terminals were installed in an annex near the advance reservations desk, now though there are five outlets situated behind the enquiry desk in the Main Reading Room. The SRI at Chancery Lane also has computer terminals for readers' and researchers' use.

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KICK OFF 2 greatly enhances the game play of KICK OFF, winner of THE GAME OF THE YEAR award in U.K. and similar awards right across Europe. A host of new features have been added to the ones that enthralled the players the world over.

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Team selection from a squad of 16 with substitution and choice of tactics.

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Kit design – 6 styles and 32 colours. (Amiga & ST only)

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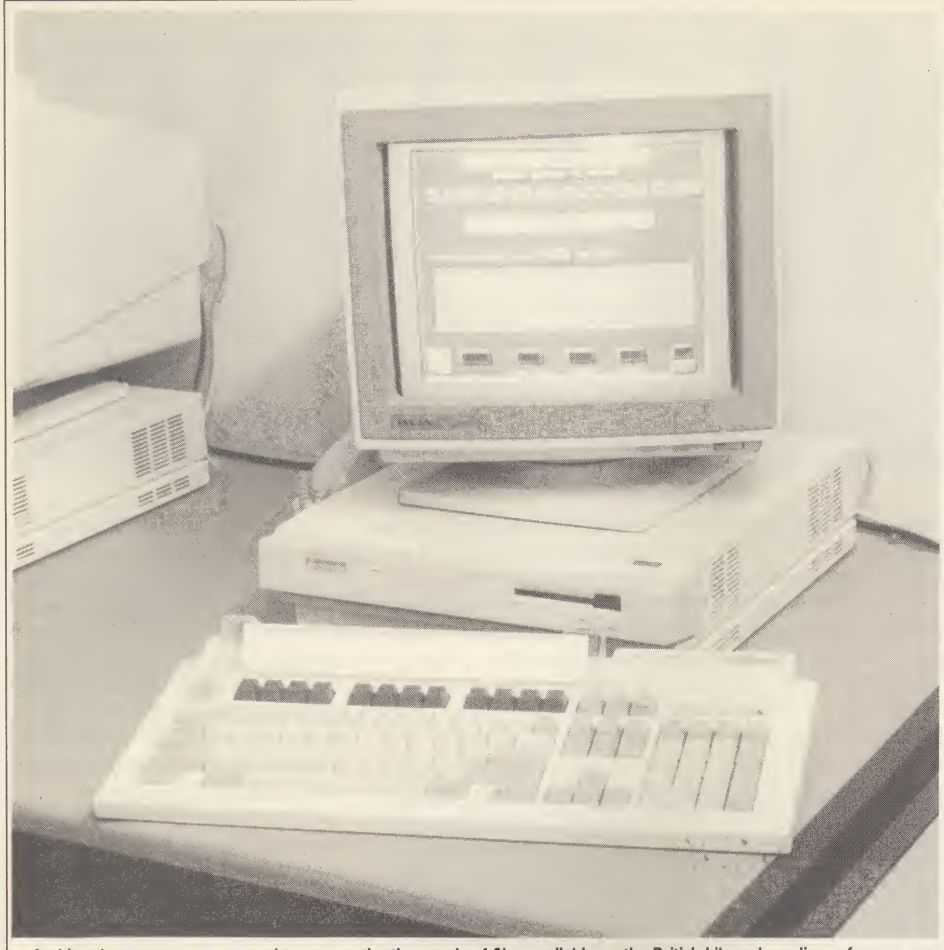

• *Archimedes computers are used to access the thousands of files available on the British Library's on-line reference service. With their fast RISC processors they are ideal for processing a large database.*

are already on-line with OLCC, and in five years at most every major library in Britain will have joined.

During the demonstration Dr Alston was connected to OLCC for 13 minutes and the total cost was £9.88. This was at 11.30am, peak rate for telephone users. His assessment of that charge is that it is very reasonable. OLCC is not open continuously 24 hours a day, but it is accessible from London from about 11 o'clock in the morning till after midnight.

A database as large as OLCC has to be constantly updated, which means that it has to go off-line for a certain period each day.

It is also accessible to the home computer buff – you can write to Dublin today and open an account. The only prohibition for the home user is cost. It is not yet possible to tap into the British Library's database, but this will come in time.

BEYOND THE CD-ROM

At present the information available is largely in the form of book references and abstracts from a narrow range of journals. The next generation, which will possibly be available next year, will be the eraseable CD-ROM. This will turn the database into a small CD; it will be able to store text, digitised and video data as well as having an overwrite and correction facility.

The first texts to be stored in this way will be encyclopaedias and technical and scientific journals, but in 10 years or less it is not unrealistic to suppose that you'll be able to sit down at your home computer and flick through the complete works of Shakespeare, the latest best seller or even the current issue of *Pravda* on the screen.

Will the computer replace the book? Dr Alston for one is sceptical. "Who wants to read a novel or the daily paper off a computer?" He goes on: "The book is actually one of the most marvellous inventions that man has ever made, and I think its use will go on for hundreds of years. Books and machines are complementary."

But researchers will have to adjust their thinking. Already a lot of academics have been queuing up to use the new system. In terms of time saved thumbing through clumsy manual catalogues the new information technology is already paying huge dividends for all library users.

At one time the problem for researchers was locating material,. Now they have the even bigger problem of selecting it. Every year the British Library adds a staggering five miles of shelving! There are now many more books in the world than people. We're already outnumbered by about five to one, so computers are becoming essential just to keep track of the amount of paper. ■

HOME HUNTING

What information services can you reach from home? The main news and information service for research available in the UK is Profile, available on Telecom Gold and supplied by *The Financial Times*. With additional information from the BBC, *The Washington Post*, Associated Press, *The Economist*, *The Independent*, *The Guardian* and even TASS, Profile costs £2 a minute. However it has full text stories and key word searches, and even in 1984 held 500 million words so it's a goldmine for research.

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• *The range of information available on-line on Profile.*

ON-LINE REFERENCES

The British Library's BLAISE catalogues includes the following databases:

- **Humanities and Social Sciences Catalogue – this includes much foreign language material.**
- **Conference Proceedings Index**
- **Music Catalogue (includes popular music)**
- **BLIS – The librarians' information service**
- **Eighteenth Century Short Title Catalogue**
- **BNB – three catalogues of British National Bibliography.**
- **Cartographical Materials – maps, atlases and globes, celestial as well as terrestrial.**
- **Whitaker – the books in print list**
- **SIGLE – (pronounced SIGG-ly) The System for Information on Grey Literature in Europe, described by Dr Alston as a very useful catalogue of 'grey' documents. Includes local authority documents, technical data etc.**
- **Books In Print (USA)**
- **Francis – a French-based system which includes considerable amounts of British and American material.**
- **National Newspaper Index – selected US newspaper indices from 1979.**

Also include are computerised indices on religion, philosophy, much American material, a Middle East file and even a digest of world-wide news as seen from Moscow.

TEETHING TROUBLES

The current on-line system available to readers is very primitive; as well as being prone to crashes it is extremely limited in the material it can locate. The following searches are typical:

- **A subject search for 'vampires' yielded 32 titles; the word 'vampire' only one; while 'vampirism' produce only "YOUR SEARCH WAS NOT SUCCESSFUL".**
- **A subject search for women criminals led to the following:**

crime 510 titles
selective review: women
2 books found.

The same search entering 'women' as the subject term:

women 6,320 titles
selective review: crime
3 books found!

TECH TIPS

Does your PC keep packing up? Is your Amiga less than friendly? Would your ST try the patience of a saint? Write to Keith Pomfret's Tech Tips and we'll soon see you right. Send your sorry stories to Tech Tips, Beauford Place, 30 Monmouth Street, Bath BA1 2BW.

HELP! Amiga assembly

Could you possibly help me on my way? I own an Amiga A500 and wish to learn assembly language. As things stand I am not computer illiterate, and I have already mastered BASIC on two other computers and am quite happy with AmigaDOS. However, when it comes to low-level languages I am completely clueless. I have also just recently completed my computer studies GCSE, having chosen to take this subject in the hope of learning assembly (this proved to be fruitless!).

Which books could you advise me to read, or better still, is there a way of being taught the language by someone? There are so many books teaching assembly, so could you advise me and any other prospective programmer on what first steps to take?
M. Majdalany, London SW5

As far as we know, there isn't a formal course on programming the Amiga in assembly language, although Watford College, a few short miles north of you, may be able to offer something suitable.

At Watford, an HNC course in software engineering leads on to a fully-fledged HND that teaches 68000 assembly language, Pascal and C.

All of these would be invaluable to you as the Amiga is based on the 68000 processor and C is the official development language for it. For more details on courses at Watford, ring the college on 0923 57613. But hurry, the courses start after the summer.

A look around the bookshelves left us undecided as to which of the many books would be of the most use to you. Different colleagues preferred different approaches offered in different books.

Pick a good library which has an up-to-date computer section and go there armed with a problem the solution you know how to bring about in BASIC. Using the available books, attempt to solve the same problem.

The book that you feel offers you the most help will be the one that is written in a way that suits you best. If you still aren't certain, Abacus Books does an Amiga series and the one on 68000 code – *Amiga Machine Language* (ISBN 1-55755-034-4) – is widely regarded as a good starting point.

HELP! ST mistake

An over-enthusiastic youngster with more wish to kill space creatures than enter data saddled our company with a dozen STFMs (1040 model). As no one understood computers, this mistake got through and it wasn't until we needed to go beyond the simple word processor, database and accounts that we realised our error.

Mass storage was an expensive nightmare, and with the company balance sheet shaking from the purchase of hard drives, we turn to you for a possible solution to the problem of networking. Our local PC business centre advises us that the only solution to the problem is to junk the STs (they offered us a pittance as a trade in) and spend about £10,000 on the right equipment (which they, coincidentally, have on offer).

The instigator of our problems no longer holds a position with us but has left his lasting legacy. Can you suggest someone who can provide a way of networking STs (and explain to us how it's done).
Ben Filey, Llanfair PG, N Wales

It is possible to network your STs using the MIDI ports. You can obtain the necessary software from either Ladbroke Computing in Preston on 0772 203166 or from Malcolm Burridge at Bath BBS on 0225 836182 (voice).

The ST comes with an operating system and hardware designed to support Musical Instrument Digital interface (MIDI), which is a 31,500 baud networking system for musical instruments and sound modules that can be adapted to carry any sort of data.

MIDI isn't the most fleet of foot in networking terms but for a dozen machines it should be fine as long as the networking isn't too intensive.

HELP! Addressing RJ

Right, I've written to you again, and this time I expect you to actually print my name and address which is: Rafael Jay, Onslow House, Weston Road, Bath BA1 2XX.

As far as the setting up of a BBC PD library goes, I have only managed to obtain two disks full of music so far, as I do not own a modem and therefore cannot peruse the BBs. Anyone (thank you John Goldsmith) who wishes to send me some software for inclusion in the library should stick it on a DFS format disk and post it to the above address. If you include an SAE I'll put something interesting on your disk (no, not a virus) and return it to you.

The library will start up as soon as I have about 10 reasonable titles ready for distribution, so come on, all you BBC owners, help show the world that our most magnificent of machines is still very much alive and kicking – and deserves more space in the *Express* columns!
Rafael Jay, Bath

Name and address included as per your requirement. If you don't have a modem, you can't trawl the bulletin boards but maybe some kind soul that has a modem will help you out by either downloading the stuff for you or leaving a message with your address in it for the sysop. In the meantime, if any sysop willing to help Rafael cares to write to me with an offer of help, I'll pass the details on to him.

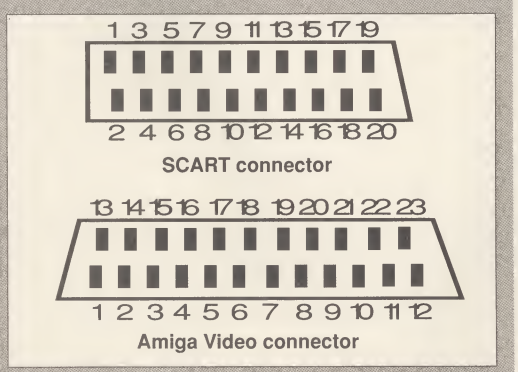
Now that your full name and address is available for our readers, I'm sure that your library will begin to grow. A chance comment to a friend in industry brought the reply that the BBC in all its manifestations (A, B, Master, etc) is still alive and kicking in many an industrial environment on account of its built in digital/analogue interface and that it is still regarded as the ideal tool for laboratory work. If you have any connections in industry, it might be worth seeing if any home (or factory) grown software written in that environment can be tailored to a useful function.

HELP! Never ending story

I am sorry but I have to tell the same old boring story about SCART leads to an Amiga. I have a TV and a standard lead. All leads look correct except that the Amiga sync output is connected to the 'video in' off the TV. Is this correct?
Worried, Wimbledon

The correct connections on an Amiga to SCART lead should be as follows:

Amiga	SCART
Pin 3 Analog red	Pin 15 red in
Pin 4 Analog green	Pin 11 green in
Pin 5 Analog blue	Pin 7 blue in
Pin 10 Composite	Sync Pin 20 Video sync in
Pin16-20 Ground	Pin 17 Video ground



• Amiga SCART lead connections.

HELP! Dutch plea

My name is Kees Bleekemolen and I have recently got hold of an Acorn Electron computer with a disk drive.

In trying to get information about a user group, or where to get software, I have reached a dead end here in Holland.

Just recently, I got hold of one of your

magazines, already dated, but it was all I had. In it there were several articles about BBC BASIC but no addresses to write to.

So as you can imagine, my question is: can you help me with an address for the Acorn factory or a user group or something like that? Is the Acorn Electron already too dated to work with?

I hope you can help me and hope to hear from you soon.
K Bleekemolen, Weth. Berbeelaan 23, 1761 GN, Anna Paulownd, Netherlands

Here are a couple of Acorn user groups in the Netherlands:

• Big Ben Club, J. Vuupiljl, Hein Baderstratt 36, 2171XP Sassenheim

• Compuser, c/o WL Van Pelt, Jacob Jrdaensstraat 15, NL 2923 CK Krimpen, Ad Ijssel, Netherlands.

And one in the UK:

• 8-bit Back Up Group, C Pinnock, 29 Ashley Gdns, Grays, Essex RM16 2LR.

HELP! Green with envy

I have a PCW 8512 which my family uses for word processing and sending out mailshots for various small local organisations. It is ideal for this purpose, but in order to utilise it more we bought some games. These were fine at first but having returned from a friend's house where there's an Atari STM, we realised the limitations of the green screen.

In the readers ads of *Express* recently someone was selling an Amstrad CTM644 monitor for a CPC computer. Can we replace the PCW monitor with the one from the CPC and get our games in colour? I think that the two computers are basically the same – same three-inch disk drives and CP/M operating system.
Arthur Nudgling, Tunstall

The PCW and CPC do indeed share the same drives, central processor and operating system, but there the similarities stop.

The PCW was conceived as an engine for word processing and 'office' tasks. While there is enough flexibility in the system to allow graphics and games, the machine is only capable of monochrome output, no matter what monitor you connect it to.

HELP! Dodgy games

I bought an Amstrad CPC 664 and monitor from the small ads in a computer magazine (not yours). Included in the deal were 50 disks (supposedly) with at least three games on each. Using the CAT command, I can find all of the games but when I try to run them with RUN "filename the machine goes into a cataleptic trance and shows me a blank blue screen.

A couple of the disks have a directory that only contains one file. When this is run, it loads something called Bigbonzo and a larger directory appears. After running one of these disks none of the others will run until the machine is reset.

The games that won't work all have their filenames in the same format and I wonder if they've been protected by some encryption
The format looks like this:

```
BUG.BIN
BUG1.BIN
BUG2.BIN
BUG3.BIN
BUG4.BIN
```

The only thing that changes is the name, but the files remain the same.
Mavis Blunt, Reading, Berks.

Your disk problems are caused by the games having been saved using a Multiface Two. This is a software back up and utility device that attaches to the expansion port. If a game has been backed up using the Multiface, it will only run with the Multiface attached.

If you don't have the originals of these games, you shouldn't even attempt to use them. Although the Multiface is an effective back up utility, it isn't legal to back up commercial software without the permission of the copyright holders. If the person you bought your machine off included the games as part of the deal, return to them and demand the originals. Even if you have the Multiface and are able to run the software, you'd be better off with the originals, particularly in these days of £1,000 rewards for 'shopping' pirates.

The couple of Bigbonzo disks that you have have been reformatted using a utility from *Nemesis* that changes the way that the CPC reads a disk in order to cram over 200K of space on each disk instead of the normal 169K (system), or 178K (data). After the machine has been reset to read the Bigbonzo format disks, it doesn't recognise ordinary disks.

TIP Disk covery

If you format 720K disks to 1.44Mb the disks may appear OK but after a couple of months you will probably get errors. What happens is that 'like' magnetic particles on the disk surface repel each other and physically move across the disk, 'smudging' your data. This particle crawl is a lot more critical on 1.44Mb disks than 720K disks.

This means that 1.44Mb disks need a better quality magnetic coating and cost more money. And there you have it.
FTB, Sheffield

And not a lot of people know that.

TIP Mooning again

I thought that everyone whose cultural development had reached the Stone Age or beyond understood that a 'moon' as a measure of time refers to the lunar cycle.

Will someone please tell Tech Tip that 365 moons amounts to roughly 28 years? Or alternatively, if he really knows a computer supplier who offers a warranty of this duration would he reveal the name of this firm to the rest of us?
Iolo Davidson, Tetbury, Glos.

The confusion came from the fact that I misheard someone referring to Iolo's motorbike and I thought they said lunar cycle.

As astronomer Davidson so rightly suggests, 365 moons would in fact come to over 28 years (28.076 and a tidgy bit more). ■

HELP! PC sound round up

What can I do to to make my PC sound like an Amiga? I've shelled out the extra cash to turn it into VGA and I'm impressed with the graphics, but I can only get a noise like a budgie on speed. Is there a card that will turn my PC into an Amiga beater?
Jason Donohue (not Donovan, I can't stand Neighbours*)*

I own an IBM compatible PC-AT and I am interested in obtaining a music card for the system. I have heard of a couple of cards for the PC (Roland and Master Blaster) but don't have the information I require to choose one. Is there a music card that is appearing as the standard? Can you interface any sound card with any hi-fi system? Any information that you could give me would be greatly appreciated.
Iain Groves, Reading, Berks

I saw a PC at a show running a Sierra game called *Slipsheed* (or something like that). The sound coming from connected speakers was pure synthesised magic. Suitably impressed, I purchased a couple of Sierra games. They didn't sound any different from a normal PC game, but as part of the installation, there are peripherals mentioned which I think may be the solution to the PC sound problem. Can you tell me what they are?
Richard Bird, Watford.

The time has come to upgrade from the C64 to something a little more substantial. A buyer for the C64 has been found, and as we intend to use the new computer for business as well as games, it has to be a PC clone. Reports that we've read say that the PC has little or no sound. Is there any way to add something to a PC in order to give it proper sound?
John Farrell, Uig , Isle of Skye.

There are now several music cards for the PC with varying degrees of software support and varying prices, from about £50 up to £500 for a full blown system that contains a MIDI synthesiser as well.

Some of the cards support more software than others and it's worth checking with your local software supplier to see which cards are best supported. If your interest goes as far as composition and recording, it's worth checking what compositional software is available and whether your chosen card is expandable (in software or MIDI.)

While there's no room in Tech Tips to do a full review of all these products, here are a few to whet your appetite:

• The Sound Blaster
• The Games Blaster
• The Ad Lib Music Synthesiser card
• The Innovation
• The Roland LAPC-1 sound card.

Starting with the most basic, the Innovation is a card based around the 6581R4 chip which gives it, at best, the ability to sound like a Commodore 64 in overdrive.

The board has a phono output and a joystick port capable of driving two joysticks via a Y cable. The data sheet that accompanies it suggests that a reasonable semblance of stereo may be had by installing two cards side by side! This is one to avoid unless you're a masochistic PC programmer.

The Sound Blaster and its little brother the Game Blaster come from Creative Labs Inc and as well as claiming compatibility with the Ad Lib System, also claim to support more games than any other system.

Sound is acceptable and Ad Lib compatibility allows it to 'ride on the back' of the Ad Lib by supporting the same games. The Game Blaster is intended purely as a games sound enhancer while the Sound Blaster opens up the world of sound synthesis to the competent PC user.

The Ad Lib card is supported by many games and programs but to get you started, comes with an impressive jukebox program which allows you to choose from 17 songs that range from Bach to boogie. The jukebox is a painless way to show off the capabilities of the card.

Also available are add on programs for writing, editing, programming, and sequencing – and there's an educational quiz available which teaches you about the constituent parts of music. The Ad-Lib is the most 'expandable' system with its many modules.

For the sheer enjoyment of sound, The Roland LAPC-1 takes a lot of beating. The LAPC-1 differs from the others by being a complete multi-tymbral polyphonic synthesiser on a full size PC card.

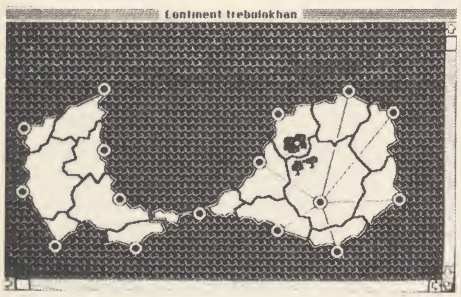
The LAPC-1 is a Roland MT32 synthesiser and as well as being supported by an increasing number of games, can have a conventional MIDI interface attached to it. This allows the connection of external instruments and modules.

WORLD POWER

Balance of Power was a superb political simulation, now the follow-up – Global Dilemma: Guns or Butter – is here and Phil South played at being a superpower...

Global Dilemma: Guns or Butter is a two disk political and military simulation from Chris Crawford, the author of the brilliant *Balance Of Power*, also by Mindscape. This game wins the *Express* silly subtitle of the month award for starters. The *Guns Or Butter* of the title tells us that it's your choice in this fictional world as to what you spend the taxpayers' dosh on. (We chose the guns every time, so make that a cheese sandwich heavy on the guns.)

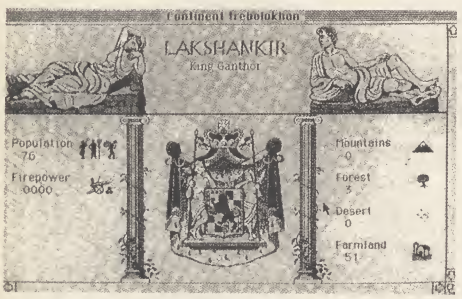
What you have to do seems quite simple initially – either live in peace with your neighbours and feed your countrymen, or build lots of guns and kill everyone concerned. Once in the thick of it, life is a little more complex, however, and you find that every task, no matter how simple, is linked to every other part of your country. Pull one bit of string, and the whole thing unravels.



• *The main map of your continent.*

LOW TECH

Chief among your concerns is balancing out the various industries in your countries. The technological level is quite low, being around the musket balls and swords kind of era, and so industry is reduced to producing lumber, sulphur, iron ore, coal, charcoal, pig iron, gunpowder, iron, farm tools, iron ploughs, swords and muskets. Food is produced as a product of agriculture, which carries on whatever you do. Obviously building more ploughs and farm tools than muskets or gunpowder speeds the growth of agriculture, but that's really the only kind of control you have over it. Mostly it's your choice of how to allocate the workforce to certain pursuits that has the most impact on your population.



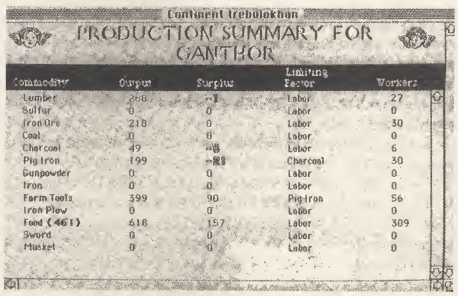
• *The details of a province displayed.*

You have to adjust all the other factors while keeping an eye on the level of food being generated or your population starts to drop. They starve to death, and that in turn has an impact on your other industries, as dead people make a poor workforce. You can drag a dead person to work, but you can't make him clock in, as the saying goes.

KEEPING TRACK

You keep track of the overall picture via a board which shows you a complete production summary for your country. Commodities are listed, and the Output figure shows how much of the stuff you're making, Surplus indicates how much is not being used, Limiting Factor shows what is holding up production and Workers tells you how many people you've got on the job. As the game goes along you need to try to stabilise your economy and fix areas which are holding up production.

Now then, this may sound very dry and boring so far, and indeed on the face of it it is. But once you've sorted out how the game works, and got used to twiddling the various sliders up and down with your mouse button, you begin to see the real engine underneath the slightly text-heavy coating.



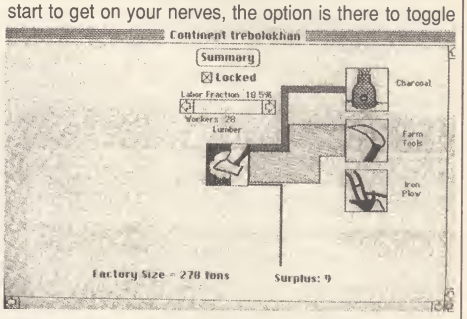
Commodity	Output	Surplus	Limiting Factor	Workers
Lumber	268	-1	Labor	27
Sulfur	0	0	Labor	0
Iron Ore	218	0	Labor	30
Coal	0	0	Labor	0
Charcoal	49	-8	Labor	6
Pig Iron	199	-88	Charcoal	30
Gunpowder	0	0	Labor	0
Iron	0	0	Labor	0
Farm Tools	399	90	Pig Iron	56
Iron Plow	0	0	Labor	0
Food (4461)	616	157	Labor	309
Sword	0	0	Labor	0
Musket	0	0	Labor	0

• *The various commodities your population is producing.*

One of the most absorbing ways to spend time in the *Guns And Butter* universe is balancing up your country's commodities so that you can build up your strength without starving everyone to death. In order to make this complex task simpler the game is organised into 'game turns', a system which will be familiar to players of role playing or wargames. The first round is an economic round, where you activate your strategy for economics, shuffling the workforce around and so on. The next round is a military round, where you march into neighbouring territories and give them what for. Finally you get the rankings phase, where your strengths and weaknesses are matched against those of your computerised or human opponents.

GOOD LOOKS

The look of the game is very pleasant, with very little in the way of coloured graphics even in PC VGA mode. The screens are very atmospheric, and careful not to look like any one period of Earth history, so you can pretend to be from any time you like. Well, any time they used muskets, anyway. Soundwise the game has not much to offer at all, having only a few primitive sound effects. But if these really start to get on your nerves, the option is there to toggle them on and off, so full marks for courtesy, if not for sound design.



• *Determining the division of labour on a task.*

If you're a strategy buff already then you'll take to *Global Dilemma* right off the bat, so no problems there. If you liked games like Infogrames' *Sim City* and MicroProse's *Railroad Tycoon*, then you should definitely give *The Global Dilemma: Guns Or Butter* a try, as it's a harder game to master with some of the same strategic elements of planning and little interlinked networks of variables for you to tinker with. If your idea of good fun is blasting endless hordes of alien gribblies to a million sparkling pixels then this is not really for you. Although having said that you may like to give it a try in the shop to see how you like it. Once you get past the text and start thinking like a king, it's one of the most addictive game experiences you'll get. ■

• *Making pacts with other leaders.*

The Global Dilemma: Guns Or Butter *is published by Mindscape for the PC and compatibles with a mouse and the Apple Macintosh. It costs £34.95.*

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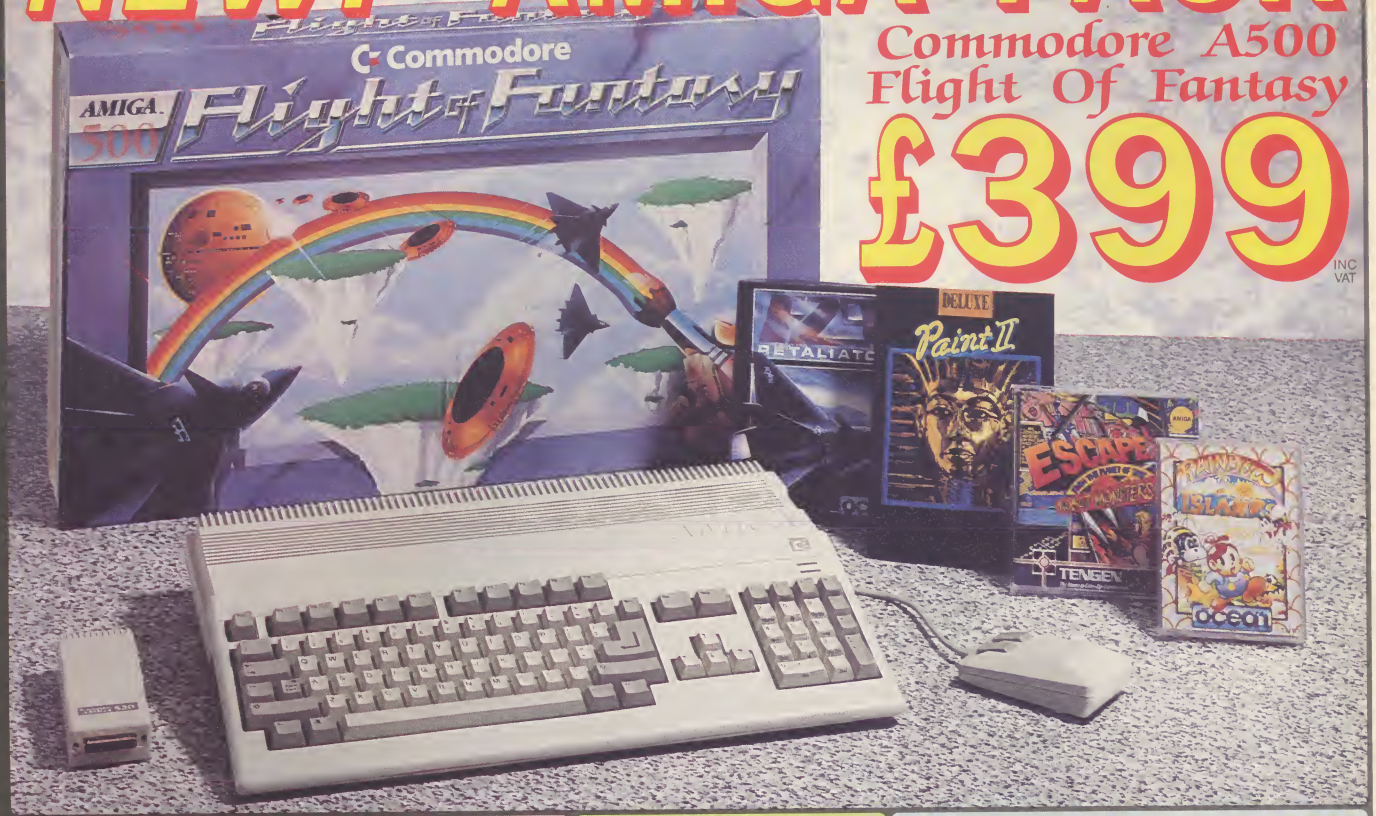

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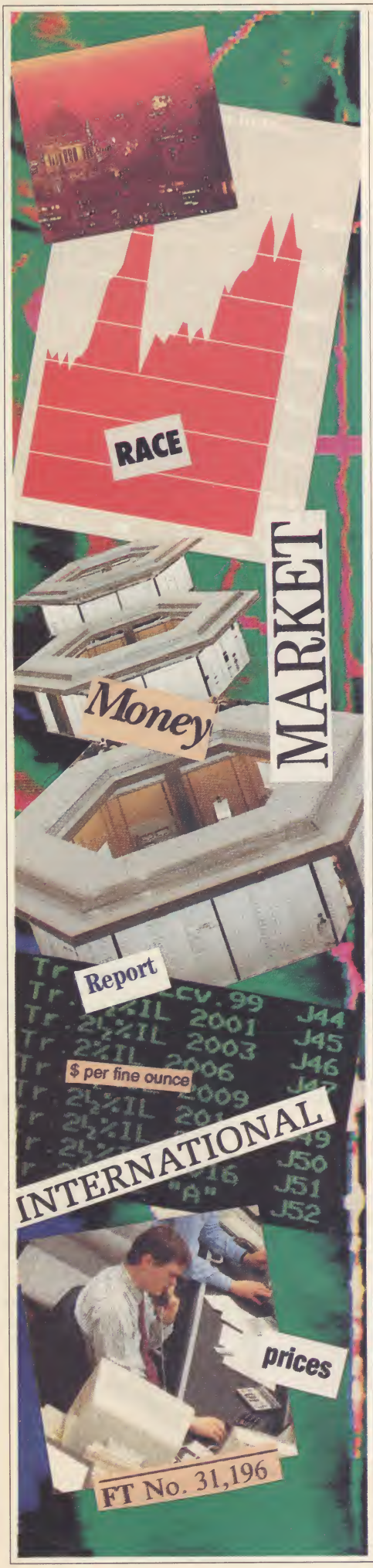

SHARE AND SHA

Forget the building society, the stock market is where the money's to be made – and pretty soon your computer could help you make your fortune. Tim Smith finds out how to dial up the City with the computer in front of you.

Buy low! Sell high! That's the cry which has been echoing around the world's stock exchanges for the last hundred years or so. Dealers, brokers, bulls, bears and stags, whatever you'd like to call them, have had a monopoly on the big deals. Every day we see prices rise and fall. Crashes on the Chicago exchange will, sooner or later, effect interest rates and spending power in Chorley and Chislehurst. So would it ever be possible for the individual to deal on his or her own behalf?

To quote a phrase: "We have the technology". But do we have the knowledge, skills and access to utilise it properly?

SELLING OUT

At the moment there are two major obstacles in the way of share dealing from home. The first is the fact that the London Stock Exchange (for one) really isn't set up to deal with small 'bargains', the stock market term for the buying and selling of shares. Small in this context means bargain of under 5,000 shares.

The reason for this is that several thousand bargains are entered into the Stock Exchange's mainframe, called TALISMAN, every day. If many more small (100-share) bargains were also entered, then the already over-stressed mainframe, and the ancillary systems which actually handle the massive bulk of paper in the form of share certificates which are produced by each deal, would simply break down.

The second reason is that the large dealing firms would have apoplexy. They make a great deal of their profit from commission charged to members of the public. Even in this case the phrase 'members of the public' is a misnomer; to the stockbroker it means anyone who isn't a stockbroker: an investment trust, bank, trade union or company fund.

Even with most of the major High Street banks providing dealing services (you could also take a look at the Debenhams share shops), most small investors are

at the mercy of the dealer as to what time – or even what day – the deal is actually made. And this timing can be critical.

As it stands right now, the individual is at the mercy of the broker. The obvious step, as any business person worth their suit will tell you, is to cut out the middle man.

THE UPSIDE

Right, that's the problems dealt with, now for the possibilities. The technology is there. Huge mainframe computers exist which can perform feats of calculations which make the existing hardware in stock exchanges look like SAM Coupés.

BULLS, BEARS AND JARGON

Like any world run for the benefit of a specialist minority, there is stock market jargon to cope with. Buying and selling shares is far more complex than merely flinging your arms up in the air and yelling a price. In fact, even the simple art of the arm throw is gone. So, in the interests of the free market, we proudly presents The Express Guide to Stocks and Shares:

Equities: Straightforward shares, such as ICI, Glaxo and Amstrad which you will see quoted on the FT-SE (Financial Times Stock Exchange) index.

Settlement: This is the process whereby shares are delivered for money. Of course it's not as easy as that – for example, a broker might buy £10,000 worth of National Power on April 1, but he does not have to pay up until the end of the 'settlement period', normally four weeks. Equally, the market maker who sold the shares doesn't have to deliver until the end of the period. Just to give some perspective, in 1988 the London Stock Exchange was dealing with un-settled bargains dating back two or three years. Beware!

Market maker: These are the big fish in the share dealing pond. Market makers are actually the companies who set the prices from which other people buy and sell. Market makers themselves can buy from one party and sell to another.

Dealers or Broker-dealers: The smaller fish. These companies deal on behalf of clients. They buy from the market makers and deliver to clients for commission.

Bull market: A market with consistently rising prices.

Bear market: A market with consistently falling prices.

Stag: Buys and sells shares fast – normally on the first day of issue. A quick buck merchant who isn't looking for long-term growth in share values.

ARE ALIKE

World-wide trading which will provide continuous, 24-hour dealing will be firmly with us before the end of the century. This means a truly free market with few holds barred. Brokers will be looking for clients wherever they can get them. The logical extension of this is that stock markets – and there are markets in Paris, Chicago and Cairo as well as the big three of New York, Hong Kong and London – will also be looking for investors. In this situation, a modem will be one of the most highly prized financial weapons.

There are already a few share price monitoring packages available for home micros; *Proshare* and *Market Breaker* for the ST, *Chart Analyst* and *ShareMaster Plus* for the PC and even *Stockmarket* for the PCW. These can be used in conjunction with downloadable data from teletext or Prestel, or information from the financial press.

But the main problem with all of these systems is their inability to cope with real-time price changes and the fact that, without direct access to the Stock Exchange Company News Service (CNS), company news is only obtainable the day after it happens. True dealers spend hour after hour looking after client portfolios by monitoring CNS and diving into the market at that critical moment when a takeover bid or new share issue is announced.

Surprisingly, this kind of information and the ability to act on immediately is more effective with small company price movements (share prices in the pennies

rather than pounds) than it is for the larger, and more leakable, companies. And it is the cheaper shares which can make the home investor wealthy. After all, a movement of 1p on a share price of 25p is a great deal more importantin percentage terms than 10p on a price of £5.00.

IDEAL WORLD

The ideal situation would be to have direct access to information, markets and dealing powers.At the moment you still have to deal via a broker. There is, however, one totally workable system which could be up and running by 2000 without requiring any advance in technology.

In this, any interested party would pay out for a home computer, a modem, dedicated software, a password and a sub-account with the local branch of their stock exchange. No dealers in sight, save for those who actually hold the stock.

The sub-account would be held on the mainframe and all dealings would be passed through it. A system presently on-line in Denmark already works in a very similar manner. In the Danish system there is no paper, and because of this all dealings are done electronically with settlement carried out on a one-day basis. This system still makes use of brokers in as much as the individual citizen still has to hold a sub-account with an accredited firm.

However, in the near future the rapid evolution of communications technology means that stock exchanges around the world could feasibly create private client accounts within their own existing mainframe settlement systems.

The opening of national boundaries and the possibility of a pan-European currency also means that there is little to stop the (creditworthy) individual from sitting down in front of a home computer and trading all day and every day.

But please remember, the price of living can rise and rise! ■

MARKET EYE

Dealers at the broking firms spend half their lives staring hopefully at screens which convey information from the Stock Exchange Automated Quotations service (SEAQ). This is the electronic equivalent of standing on the trading floor and watching hands shooting up or heads dropping down. Not only are price moves shown as they happen – give or take a nanosecond – but company news is also relayed, as is a list of each share showing which market maker is giving the best price.

SEAQ works on a basic viewdata basis, an emulation obtainable on most micros nowadays – it's the format used in in teletext systems such as Oracle and Prestel. Now wouldn't it be handy to monitor your portfolio using such a system?

Yes indeed, and to this end the Stock Exchange has been running a system called Market Eye for the last four years. This under-publicised utility has only really been taken up by corporate bodies such as banks. However there is nothing to stop a group of people, say a Christmas club or even a school, getting together and making use of Market Eye. The only point where this would be infringing any rules would be if the information gained from the service is passed on to third parties and those third parties were to be charged for it.

What you get for your money is a decoder, a dedicated screen and access to all the real-time share price movements you could wish for via SEAQ. Because the signals are relayed via the BBC's television frequencies (much like Ceefax) they can be picked up using a simple UHF aerial.

To save you having to remain glued to the service all day you can create a page into which your portfolio can be 'pasted'. Not only does this save you from having to leap all over the shop, you can also set the system to be price sensitive.

For example, your portfolio might consist of four stocks; Lineker Ltd, Parker Prefs, Megaplatts Inc, and Wright Ltd. You might also want to get into and Walker, Pearce & Sons when the price is right.

Having bought all of your Megaplatts at 30p a share you can set Market Eye to literally ring alarm bells when the price rises above 45p (sell! sell! sell!) or drops below 32p (sell even more quickly!). In the case of Walker, Pearce & Sons, you can set up your system to warn you when the price drops below 22p (buy).

Unhappily, at the moment there is no live company news service available. What you get instead is a small flash which appears next to the relevant price and which at least informs you that something is afoot. At the time of going to press, the Stock Exchange were looking into the feasibility of including CNS on Market Eye.

For more details on the Market Eye system you should call 071-588 2355 and ask for the Market Eye help desk.

SHARE DEALING FROM HOME: ONE MAN'S EXPERIENCE

David Dugdall has been keeping an eye on his portfolio for a number of years. Recently he has moved on to teletext and Teleshare. Now he is putting his ST to good use with two programs called *Market Breaker* and *ProShare*.

Using this software he can download information from teletext to be collated by his computer. This is short to medium term trend analysis: "I tend to keep any shares which cost under £1 on a database, the others I keep in alphabetical order," says David. Even though you can do a daily track of price movements using Ceefax or Oracle, it is in the collation of the data at which the computer excels.

Even without access to company news and minute-by-minute price changes, it is possible to spot changes in the medium term. "It is best to update your databases daily. That way you can get keep up with the changes."

Dealing is also fairly quick, although you still can't phone through a buy or sell yourself. However, as David says: "I've had no problems with buying or selling. With a well-kept system, the information is there when you want it and there are plenty or firms who will take on small clients. Using Teleshare on teletext, minimum bargains are generally around £1,200 with commission from a minimum of £17.50."

Proshare is available from TC Developments (0937 61145) for £49.95. *Market Breaker* is available from Jewsbury Software (0705 595694) for £69.95. *ShareMaster Plus* costs £249.95 from Synergy Software on 0582 424282. *Chart Analyst* for the PC costs £69.95 from Meridian Software on 081-850 7057.

WIN some sparkling music software

Just the Word

£495-worth of prizes for ST and Amiga owners this week. Not only will the ten copies of *Quartet* we're giving away complement your software collection, they might even boost you to international music fame.

In the June issue, *Amiga Format* said: "It's nice to see a program which not only looks really good but performs equally well ... truly a case of delivering music power to the elbows of the masses."

Because the Amiga version differs so much from its original incarnation on the ST, you might like to know what *ST Format* said: "If you're the slightest bit interested in making music, or have dreams of going down in musical history, *Quartet* is the package to beat all others. Go for it!"

To top that off, in issue 79, *Express* said: "...you'll be knocking out tunes in no time."

Quartet comes with a full editing screen which allows you to mould sampled sounds in to your own magnum opus. It can be controlled from an external MIDI device and comes with source code, and a freely distributable player program. If that isn't enough you can also combine your sounds with IFF format pictures to create demos.

All you have to do in order to win a copy of *Quartet* is buy the copy of *Express* you're leafing through, relax and scour it for the prize winning word.

Somewhere in this issue of *Express* – either in the editorial or in an advertisement – is the word KALEIDOGYN. Find the word, then fill in the number of the page it appears on in the space provided on the answer form.

Fill in you name and address and send you entry to *Quartet* Competition, *New Computer Express*, 30 Monmouth Street, Bath BA1 2AP, to arrive not later than Monday July 30.

The first 10 correct entries out of the hat will win *Quartet* – we have five each of the ST and Amiga versions – and the editor's decision is final. ■

WINNERS!

The *Portext* competition proves that PC owners really do want to get organised. The first five winners, who told us which disk format they used, out of the editorial bowler were:
Mr C Radcliffe, Altrincham, Cheshire
Edwin Chappell, Ashtead, Surrey
T Hussain, Bradford, West Yorks
Keith Blower, Steeton, West Yorks
Colin Procter, Hatfield, Herts

NAME .....

ADDRESS .....

.....

.....

ST ☐ **AMIGA** ☐

The page containing the word KALEIDOGYN Is.....

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THE AMAZING AMOS

An all-singing, all-dancing games creator for the Amiga is finally here. Kelly Fisher takes a look at AMOS...

Although Amiga owners can fairly claim their machine is the platform *par excellence* for state-of-the-art leisure titles, the means of authoring the titles themselves has been somewhat restricted. Palace's *Shoot-'em-up Construction Kit* left a lot to be desired, while Microdeal's *Talespin* received little praise. The ST has been blessed with two games creators to date – Mandarin's STOS and Incentive's adventure creator, *STAC* – both well received. Now the Amiga version of STOS has arrived, after a eight-month delay, in the form of AMOS.

In a nutshell, AMOS is built around an advanced BASIC programming language largely geared to the creation of arcade games in that it offers sprite manipulation, sampled sounds and fast blitter objects. However, AMOS BASIC is so heavily optimised as to leave other Amiga BASICS standing.

BEYOND INTUITION

It manages to shift so fast because it bypasses much of the Amiga's operating system in order to handle screens, windows and drawing functions. So it isn't Intuition based and you'll be writing code without that support, but then as most programmers dump Intuition anyway you'll have become a member of the big league. Thankfully, the programming environment you're left with is well-structured and procedure based so debugging code is made a great deal easier.

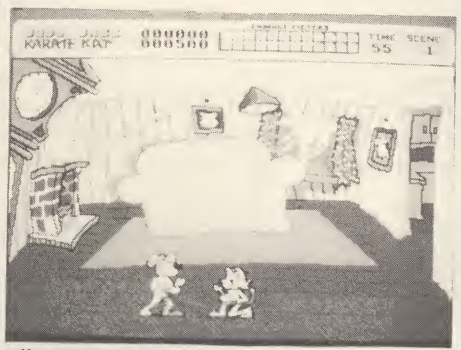
The big advantage in dumping Intuition screen handling is that you can write multiple screens, each with their own resolution and colour palettes, that are all part of the same view. In addition AMOS allows you to import IFF files easily from other graphics packages and assign them to a part of a view with one single command. As such the scope is enormous. Also innovatory is the capability AMOS offers to utilise the Amiga's copper processor to produce rainbow effects and other visual feats hitherto only possible using low-level hardware programming.

MIGHTY SPRITES

The package supports both hardware and software sprite handling so the quality, size and definition of the essential components of any game are maximised. It's possible to display up to 64 hardware sprites on the screen at any one time, and moreover AMOS gives you access to a number of blitter-based sprites or BOBs only limited by available memory.

Animation is handled by AMAL, a built-in language running in via interrupts alongside the main BASIC, which allows you to animate anything from a single pixel to an entire screen. AMAL lets you move up to 16 sprites simultaneously, each with individual motion paths defined by simply moving your cursor around the screen. This feature alone takes one hell of a lot of drudgery out of animation coding.

Scheduled for release later this year is AMOS 3D, an extension which will allow you to incorporate solid 3D objects into AMOS games without the normal hassles. Also on the horizon is a compiler which will convert AMOS codes into stand-alone routines. Meanwhile if you buy AMOS direct from Mandarin you can get your hands on *Sprites 600* which, funnily enough, offers 600 different sprites for inclusion in AMOS games.



• **Karate Kat: a game created with AMOS.**

SOUND BYTES

AMOS's main advantage in the sound department is its ability to play sequences as independent tasks. Sampled IFF sounds can be imported into the package's Sample Bank, played back at varying speeds and looped with ease. Better still, you can pull in samples from *Sound Tracker, Game Music Creator* and *Sonix* with AMOS's conversion utility and play them using interrupts too.

AMOS may have been delayed but it has been worth the wait, since you have over 500 commands at your disposal to author the game of your choice. The package won't write the game for you but it'll present you with all the time saving facilities necessary. While as a language it isn't geared up for applications programming, it's ideal for any program that requires fast graphics, animation, smooth scrolling and sampled sound. At £49.95 it has to be bargain. ■

AMOS is available for all Amigas at £49.95 from Mandarin Software on 0625 878888.

COPYRIGHTS

Mandarin's *Cartoon Capers* was produced using AMOS, so there's little doubt you can use the package to create commercially viable games. But what's the position on copyright if you produce and sell such a game yourself? Mandarin is quite happy for you to go ahead and do just that as long as you credit the system in the start-up screen. Besides which, Mandarin is on record as saying it will actively consider marketing games written under AMOS. Of course, there are no guarantees here – it's up to you to produce the biz!

ACCESSORIES

AMOS's sprite designer enables you to create animated blitter sprites using any number of colours before flipping, rotating and stretching them, while the map designer, TAME, offers game-worlds made up of maps built up from four picture blocks from any IFF source. Although a sound editor isn't included there's one in the pipeline, but in the meantime you'll need a sampler product to fully utilise the system's potential. The same goes for paint packages. Here, *Deluxe Paint* or something similar is a must.

A STRAIGHT PORT?

Now don't you Amiga owners start getting ideas that AMOS is just a clone of STOS – the equivalent on the ST. AMOS has been written from scratch by François Lionet to take full advantage of the Amiga's extra hardware. With respectable sales of STOS on the ST you can also be sure there'll be plenty of other Amiga owners contemplating buying the packages besides yourself.

EXPRESS MAIL

Britain's liveliest computing forum – packed with comment, controversy and conflict. Write and tell us what you think! Reach us at: *Express Mail, 30 Monmouth Street, Bath BA1 2BW.* Sorry, no personal replies, even with an SAE. This week's replies by Keith Pomfret.

Mr Men

Having read the latest issue of *Express*, I feel compelled to complain about your insinuation that I had written a letter to your journal. I had this pointed out to me by a friend, Mr Nosey, and I was most upset that he thought I should read such rubbish as your boring magazine purveys.

It contains boring long articles on football games (which you freely admit are thoroughly boring), on useless programs for predicting the telephone number of the second cousin of your sister's aunt by marriage, and other sundry uninteresting tosh.

As you can see, my letters come straight to the point immediately and with no messing about, and as such, I have issued a writ for libel, and expect to see you in Mr Clever's court at 3.45 pm on Friday.

Mr Grumpy, Grumpville, Grumpland

Mr Sneaky, the *Express* lawyer, is rubbing his hands with glee at the thought. We've sent him off to get Mr Slimy, a barrister friend of his (who coincidentally happens to be Mr Clever's brother), and we look forward to taking all your money and putting it in Mr Greedy's bank.

Going Dutch

In the PC column, *Express* 83, Simon Williams suggests using batch file instructions to display the time while avoiding the need to enter a return or updated time. He does this by using a file – `cr.dat` – as input to the DOS command TIME.

The disadvantages to this approach are as follows:

- The request for a time update is echoed to the screen.
- You have a file consisting only of a carriage return cluttering up your directory.

Both drawbacks can be avoided by using a line such as:

```
@echo ^@ :time: find "C"
```

The first '@' suppresses echoing of the current line (it is not required if you have 'echo off' in a preceding line).

The '^@' is a nul byte, and can be produced in EDLIN by CTRL+V followed by SHIFT+2. Alternatively, the file can be produced using the COPY CON filename procedure using any character as a space, which can be subsequently replaced by HEX(00) using DEBUG.

R L F Dawes, Weesp, The Netherlands

Which goes to prove that a different mind on the same problem will find a different and in this case, quite elegant solution. We welcome advice and tips and should you think of any more useful ideas, please send them in to Tech Tip at the usual address.

A puzzler

I have computer software which will generate and print out 'Wordsearch' and 'Crossword' types of puzzles. It has occured to me that I may be able to sell such puzzles commercially, but I don't really know where to start.

Do you happen to know if the various puzzle magazines and newspapers buy from outside sources, or if they compile their own puzzles? If the latter is the case , then of course my idea is a non-starter!

If you cannot help, do you know of a central organisation which could provide the required information as it is obviously impractical to contact all the various publications individually.

Perhaps you would be kind enough to print my full address in case any of your readers can help, or require samples of puzzles, etc.

T R Ball, 5 Howarth Avenue, Church, Nr Accrington, Lancs BB5 4AF

There is a company called Ackom which publishes *Times* and *Sun* computer crosswords with some degree of success – so there's definitely a demand for them.

Look around for a software house that publishes the more serious sort of games and approach them with your programs. The degree of enthusiasm with which they greet your work will be a good indicator of how good they think your work is and what they percieve the market to be. Alternatively, you can sit back and enjoy the response generated by your letter to *Express*.

Password PC

I am at present shopping around for an IBM-compatible hard disk computer, which I will be sharing with someone else. Both of us want to keep private files on it. Is there any software available which would enable us to keep files 'locked' from each other? (eg by password).

S Harrison, Norton, N Yorks

The sort of password protection that you require comes in several forms. If the information you are planning to store is of a truly sensitive or confidential nature, the simplest and most effective way to assure security is to store it on floppy disks and remove them from the machine when you aren't using it.

A 'hardware' solution is to fit a

Warp factor v word processing

I am a pensioner, and although my physical capabilities have weakened considerably, the technical cells in my head are receiving and sending like they were installed only yesterday. I have treated myself to an Atari ST computer.

The sheer thrill of being able to build my own spaceship and travel the universe is mind bending!

After thumbing through the pages of various computer mags my vision of space has taken on a different aspect, and I'm no longer enthusiastic about travelling 'out there'.

From what I can gather, you can meet a number of nasty characters on the way, who will zap you for less than the price of a bag of bon-bons!

To be knocked down by a bus is one thing, but to go up in a puff of smoke at the hands of some smart alec alien wielding a nifty looking laser gun, is something else!

So, after a long and lengthy debate between me and my cowardly conscience, it was decided the safest thing to do was to 'stay put' and use my computer as a typewriter!

You see, I have always had this secret notion to become a writer. It's probably a silly notion, and I'm sure someone, somewhere, will inform me, by word or by deed, whether or not it should remain a secret.

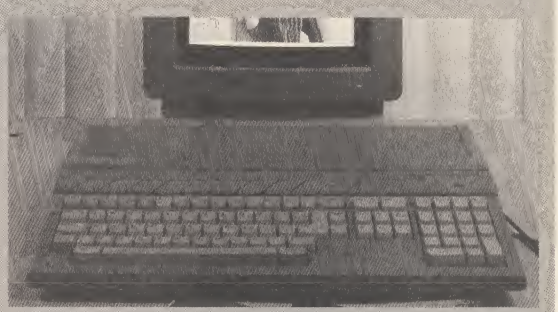
The consequence of this change in direction towards a future literary career, is a sudden interest in Word Processors. One Package that comes to mind is the one that Steve Carey raved about a few weeks ago.

It's the one that has cum-this-cum-that-cum everything else.... Yes, that's the one! And he is right , it can be a bit hard to cum-by.

Anyway, it sounds like the one that will make my day. and I have already sent off for it. It's only a matter of time now before I become another Ernest Hemingway, or even a playwright like Ernie Wise!

But in between novels and plays, I'll try my best to squeeze in a letter or two to *Express*!

Cliff McLean, Lancaster, Lancs



• Have ST, will travel.

You could try some of the Freescape games like *Driller* and *Darkside* where the occasional alien laser is interspersed with a good dose of problem solving and puzzling to keep your cerebral bits sharply honed.

The resultant steeltrap mind will no doubt fashion prose you send Messrs Archer, Francis and Forbes running for the scotch and Valium.

removable hard disk to the machine. This allows you to remove the disk plattens in a sealed unit. The simple software solution, however, is to use a utility program such as *PC Tools* 6 which allows you to password protect individual files. The added advantage of using a program like *PC Tools* is that you have a complete suite of utilities as well as password protection.

Where's it gone?

Like many other regular readers, I would like to know what has happened to our Atari XE Column. Your reply determines whether or not I cancel my subscription.
Ron James, Ribbleton, Preston

Our Atari columnist rode off into the sunset taking his encyclopaedic knowledge with him. Worse, he was wooed away by its 16-bit cousin the ST.

We are currently using strong light and electrodes to interrogate all other likely candidates. If and when Reggie and the boys return from the *Express* cellar with a new aspirant to the XE throne, smoke will rise over Monmouth Street in true papal tradition.

Bang to rights

First let me say what an excellent weekly computer magazine you produce. I know it has been said many times before, but I am sure you like to be reminded. I have been buying *Express* every week since issue one and will continue to do so. It is far better VFM than that other weekly.

That's the praise now the moans! First and foremost you will find my fourth coupon to advertise my computer club called 'Basildon All Format's Computer Club', enclosed with this letter. Up until now, (that is presuming you print this one) you have not published one of my adverts. We are a legitimate club, no pirating, etc, covering all computers and all aspects of computing. We meet Wednesdays at 7:30 pm in Laindon Library. All are welcome.

My second moan is consoles. For a computer magazine you are spending too much space on the dreaded consoles. Surely these are just dedicated games machines not computers? It was bad enough the amount of space wasted on the ST and Amiga, but at least they are nearly computers (in as much as they have a keyboard). So come on, less games machines and more computers.

Thank you for letting me have my moan and I am sure you will put things to rights.
S R Kilcoin, Basildon All Formats Computer Club, 187 Spurriers, Laindon, Basildon, Essex, SS15 5NG

Your legitimacy has guaranteed you a prime spot in the mailbag and the inclusion of your address in this prominent location will assure you of the attention of the computer users in your area. However, I suspect that your comments about STs Amigas and consoles will steer many an interested user in the direction of a more tolerant regime.

Wise after the event

Re: MGT going into receivership

When MGT announced that it was bringing out a new 8-bit computer my fears for it started. You see, I own a Spectrum and I was interested in the SAM Coupé until I read that it was still 8-bit.

MGT brought out the Coupé too late – years too late! This has already been proven by a computer from some time back.

Who remembers the Enterprise (no, not the Spaceship, the computer)? It was an 8-bit with good quality sound and graphics, and it should have wiped the floor with the Spectrum (and possibly the Commodore) but it was released when the Spectrum and Commodore had already captured the market.

That was a good few years ago. This is 1990 did MGT really think it was going to have a smash hit with an 8-bit computer that, let's face it, is nothing more than a re-vamped Spectrum?

Look at it from the buyer's point of view. The person wants to upgrade, from an 8-bit, to a new computer with better graphics/sound/memory and also wants good software (and hardware) backup. Why should he go and buy an 8-bit machine at £245 (Coupé with one disk drive) when he can get a 16-bit computer for £279 (Atari 520STFM Discovery Pack)? The only advantage that I can see is that the Coupé runs Spectrum software.

You will probably get letters defending the Coupé, but don't get me wrong, I think it is a great machine but it has been brought out too late and at too high a price.
A Price, Lewes, East Sussex

The horse has bolted. Why wait at the stable door? Let's have letters full of constructive advice instead of destructive criticism.

My mainframe's better

Thank you for giving me the chance to boast about my ICL mainframe set-up. Details are regrettably vague, I'm unable to find another employee who understands my questions about memory, hard disks, operating-system and modem baud rate.

I get nervous looks, as though I might be from outer space; new recruits are apparently not supposed to embarrass their seniors by asking technical questions.

I use a POS (Point of Sale) 'intelligent' terminal, in a well-known High Street store. With each transaction, I automatically record new stock to be put on the weekly delivery van. I can also select a complete sales analysis of average puchase, number of items per customer, number purchasing customers and percentage of daily and weekly targets achieved so far.

Sales records are saved onto a hard disk within the terminal. Other files on the disk contain instant information on stock code-numbers and prices. A customer paying by cheque, signs a neatly printed read-out of the transaction on the cheque itself. Credit cards are'wiped' through a slot on the terminal and the voucher printed also.

The terminal serves as our clocking on/off machine, recording wages due to us. At the end of the day, sales records are polled – ie, time shared down an overnight modem-link to the ICL head office mainframe where they are processed.

All this technology is enough to make poor 'Arkwright' (Ronnie Barker) despair. He is still trapping fingers in an old-fashioned till that has seen better days. Yet in the future even the small shop-keeper will be able to benefit from some of this technology, using the same till, without the modem and mainframe.

What do I sell? Educational toys for children and nothing at all to do with computers.
Wendy Stokes-Clare, Nesscliffe, Shropshire

A cashier working on an IBM computerised supermarket checkout reckons her point of sale laser driven counting engine's much whizzier than your nasty Scottish ICL.

If you think that *Express* is going to get into a my till's better than your bar code reader debate, then you have yet another think coming.

Computing delight

Hello again *Express*. It's another series of letters in a limited edition of one.

***Express* 85 seems to have been through a timewarp. What the hell is going on? A Spectrum on the front cover! It seems that Spectrums are back in vogue again. The eight's bytten back.**

Will the machine of the 80s be the machine of the 90s? The Spectrum has more machines emulating it than the PC. The Amiga, the PC, the SAM Coupé, the Hobbit, the Timex 5000 are all emulating old Clive's (sorry Sugar's) beast. And none too well at that.

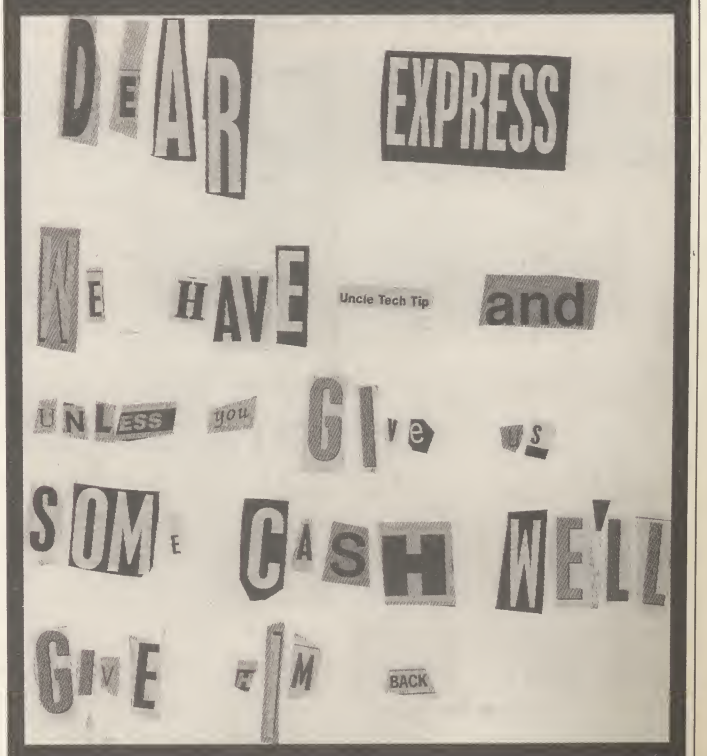
Anyway, enough about plagiarism and more about this week's topic – the Coupé. Well, nice machine pity about the manual. It was obvious why it went down the drain. To survive, a machine must have a decent illegible manual, preferably written by an illiterate Yugoslavian – eg, the Dragon oops! sorry! the MSX, oops! sorry! the ST. Yep! the ST. Nice manual!

The Coupé was too easy to use – where's the challenge? In the good old days we had decent machines like the Oric where if you touched the PSV it blew up! Or the ZX81 with its infamous wobbly rampack – sneeze and bang goes your program (or beep in my case).

TTFN til next week and a quick plug for Merlin BBS on 0443 834179
Lawrence Sheed, Hampstead

A real first rate first edition! Thank you and, as they say, good night. ■

The whereabouts of Uncle TT



Of course you might have Uncle TT, but we doubt it. For Uncle TT was last seen mounted and riding out of town in style with his trusty sidekick, Atari 8-bit columnist Edmund Blake. Indeed, they shared a saddle, for they were, as few people knew, one and the same.

COMMENT

A new 32MHz TT will open up many new markets for Atari. But are high-end MHz races where power without the price really matters?

Atari's decision to upgrade its high-end TT workstation would appear to have caught both UK commentators and, more surprisingly, UK developers off guard.

Posted on the company's official bulletin board in The Netherlands by Atari itself, the announcement will no doubt thrill the Dutch and German developers for whom it was intended. Replacing the 16MHz chip with a faster version which Dutch developers expect to increase the machine's performance nearly threefold, was a initiative Atari took after consultations with those very same developers.

For the arrival of a Commodore A3000 with a 25MHz 68030 processor would have rendered the 16MHz TT stillborn for all but specific ST applications. If there is room in the growing graphics workstation market for new low-cost players to compete with the likes of Sun, Apollo and Silicon Graphics, then above all those machines have to be fast. Like Steve Jobs' NeXT machine, which has the same market in its sights, Atari's TT was designed from the outset with Unix compatibility in mind.

The idea being that for companies engaged in number-crunching intensive CAD/CAM applications, the purchase of a NeXT or a TT or, for that matter, an A3000, would be a cheap alternative to the five figure machines with the current monopoly. At £2,000, the new 32MHz TT beats the NeXT and Commodore machines hands down in this rapidly expanding market.

EMULATION CITY

Perhaps we needn't even look as far as Unix though. With both PC and Macintosh emulation available to it, the new TT will outperform most 386s, some 486s and every Mac this side of a £7,000 40MHz IIfx. So, with emulation and shrewd marketing, the new TT should make great strides.

Other people's power without other people's prices may well be the new motto Atari will have to reluctantly bear.

This aside though, the TT's ST compatibility will further substantiate its perceived position in Holland and Germany as a serious business and graphics machine. It's there that the ST is still happening; there that the new hardware and software innovations appear; there that the machine is deemed to be a reliable DTP engine.

PEAKED

It's precisely for these reasons that one can claim the ST has peaked over here. This is despite the enhancements of the STE and the bundled repositioning of its 1040 variant as a bargain business pack. And in retrospect it's probably the 'too little too late' tag attached to the STE that made the company rethink the TT specification. For Atari has gone to great lengths to proclaim itself as an innovator in areas other than power without the price.

From the original ST to the Portfolio and Lynx, the company has wanted to be perceived as more than just the one-time console kings of the early Eighties US video games boom. So, although they won't be saving up for the fastest games machine money can buy, Atari devotees can take solace in the news that once again their machine has taken the high ground.

Whether MHz races at the high-end is where Atari is best suited is another matter though. There's still more money to be made in the middle-ground and the company should be setting its sights on a low-cost CD unit.

That's where the action is now. And competition in the form of the Commodore CDTV is already in place. At £800, it would seem ripe for some serious undercutting. ■

NEXT WEEK

DEMO POWER
Do demos really show the power of a machine?

HANDY ADVICE
Getting data from your lap on to your desk

PLUS

- The Shopping Express guide to word processors
- Tech Tips: advice
- Letters: The best debate outside of Parliament

WITH

A column for your machine. ST, PC, Amiga, C64, Spectrum, Archimedes, BBC, MSX, QL, PCW, CPC and SAM Coupé and five pages of up-to-the-minute news

FROM The ARCHIVE

ONE YEAR AGO

Attempts to crack down on software copying devices failed when a loophole in the law allowed manufacturers to carry on selling them. The loophole allowed the continued sale of any device that the manufacturer could prove had a legitimate use.

This worked on the same premise that it isn't illegal to buy or sell a car that can break the speed limit, or a crowbar that can be used to commit burglary.

The responsibility for the breach of law rests squarely on the user of the device.

• One year later Amstrad announced its 'Double-Decker', a twin tape video recorder that among other things can be used to clone video tapes.

Anticipating the World Cup by twelve months, Anco announced that its tactical game *Player Manager* would be out in the autumn, giving pundits a good nine months to get the hang of it.

A foul-mouthed virus called Fu-Manchu attacked world leaders by adding "Is a ****" to the printer buffer every time a famous political figure's name appeared in a document. Because the addition didn't appear on the display, it was possible for documents with the offending message to get mailed out.

Famous figures who came in for the abuse were Ronald Reagan, P W Botha, Michail Gorbachev, Kurt Waldheim and Margaret Thatcher, among others.

Far Eastern pirates received a dose of trouncing when trade officers working for *WordStar* raided six shops in Kuala Lumpur.

The pirates were prosecuted under a new Malaysian copyright law which took software into account for the first time.

The weekly Wednesday rail strike was causing commuters to stay at home according to micro rental companies. Instead of battling through the traffic, executives were paying £170 a week to rent machines. One micro rental firm reported having to buy in stock to cope with the demand.

A spokesman for Micro-Rent said: "Our clientele over the last few weeks has been management consultants and executives. We've had to invest heavily to cope with the demand." PC rental firm CCA didn't fare quite so well. None of its staff made it to work because of the train strike.

Following MicroLink's decision to abandon Telecom Gold in favour of Istel, Gold offered former MicroLinkers the option of remaining on Gold and upgrading to a Telecom Gold/Micronet account.

The annual report from the Data Protection Registrar told Parliament that complaints from the public about information held on computer was increasing.

New areas for complaint included the councils' Poll Tax computers, credit search agencies and the then-projected computerisation of the register of soccer fans.

When asked of his plans for the next five years, Atari boss Sam Tramiel said: "To kill Nintendo." This being the case, he's still got four years to accomplish his task.

MGT's Lifetime drive was tested at length by *Express*. The Lifetime drive was designed to be compatible with as many machines as possible. This allowed it to be transferred to the 'next' machine by someone upgrading.

TWO YEARS AGO

The prolonged battle between Telecomsoft and Hewson over Telecom's alleged poaching was ended with both firms issuing a firm no-comment. Hewson had cried foul when Telecomsoft 'poached' the Graftgold programming team, causing Graftgold to break their contracts.

One of the reasons for the ending of the dispute was the spiralling legal costs which were taking their toll on both companies.

Sources: *New Computer Express, Computer Talk, Computer Trade Weekly.*

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ATARI Portfolio

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The new Portfolio from Atari is the world's first pocket-sized electronic organiser that is also a powerful PC compatible computer, with a full QWERTY keyboard and scrolling 80×25 character display.

Portfolio includes everything you would expect from an electronic organiser - an address and telephone book, time manager, diary and sophisticated calculator.

Portfolio also includes several functions that you would not expect - a spreadsheet for your personal budget and expense records, as well as a text processor for typing memos and letters.

And, because Atari's Portfolio is PC compatible, it can communicate with your desktop PC at home, or in the office. You can transfer files from one to the other, to enable you to update your reports and figures with the Portfolio while you are on the move.

FOR ONLY **£249** INC VAT

SPECIFICATION

- ★ ***Processor:*** Intel 80C88 at 4.9152Mhz.
- ★ ***Operating System:*** Compatible with MS-DOS 2.11.
- ★ ***Internal ROM:*** 256K containing BIOS, operating system and applications suite.
- ★ ***RAM:*** 128K with an internal RAM disk, configurable from 8K. Externally expandable to 640K RAM.
- ★ ***Keyboard:*** 63 keys, QWERTY, IBM PC BIOS compatible. Buried numeric pad and function keys. Optional key click.
- ★ ***Character Set:*** Extended IBM ASCII (255 characters).
- ★ ***Mass storage:*** credit card sized memory cards (32K or 64K or 128K RAM).
- ★ ***Display:*** Graphics LCD, supertwist technology, MDA compatible, 40 columns x 8 lines, 240 x 64 pixels (with the option to window a full 80 x 25 character display). Keyboard controlled contrast.
- ★ ***Peripherals:*** 60 pin expansion BUS to take serial and parallel ports and memory expansion units.
- ★ ***Size:*** 8" x 4" x 1" (200mm x 105mm x 29mm).
- ★ ***Weight:*** 495 grammes (with batteries).
- ★ ***Applications:*** calendar and diary, address and phone book, Lotus 1-2-3 compatible spreadsheet, text processor, communications software.

COMING SOON!

In addition to the excellent software built-in to the Portfolio Free of Charge (see right), other software and peripheral products, such as the sophisticated Pocket Finance package and serial/centronics interfaces are available. And it doesn't stop there. Many manufacturers have recognised the potential of the Portfolio and have already started to design new peripherals and software. Products currently under development include: Serial interface with built in mini modem, Apple Macintosh interface, business, utility and programming software plus a range of adventure and battle strategy games. For further free details on the Portfolio range, fill in the coupon below and return it to Silica Systems now.

5 BUILT-IN APPLICATIONS TO GET YOU ORGANISED!

To get you started, Portfolio comes with a suite of five useful functions built-in, all accessible from a simple menu display.

TIME MANAGER

More than just an electronic diary, the Portfolio Time Manager enables you to plan your appointments via a comprehensive calendar and diary. It can even be programmed to sound an audible alarm at specific times to remind you of important appointments.

CALCULATOR

Your Portfolio will be invaluable in the office or at home as a powerful pocket calculator. It has a full range of functions, including factorial, power and root calculations, all with multi display formats and memories.

ADDRESS BOOK & DIALLER

Portfolio has a complete address book facility that allows you to store hundreds of addresses and phone numbers. And, at the touch of a button, you can retrieve any one of them, or search for a specific grouping, such as "all Italian restaurants". And, when you are ready to book your table, hold your Portfolio to your telephone mouthpiece and use its special built-in tone dialler to dial the number for you.

TEXT PROCESSOR

The Portfolio's built-in text processor program includes word wrap, line and column count, string search, in fact most of the functions you would find in a word processor. It handles printer and word processor control codes and allows easy transfer of files between Portfolio and your desktop PC.

SPREADSHEET

For real calculating power, Portfolio has a Lotus 1-2-3 compatible spreadsheet built-in. It has 127 columns x 225 rows and reads/writes Lotus V1.0 and V2.01 files, so you can transfer data to and from Lotus 1-2-3 on your desktop PC. The Portfolio's 256K ROM includes MS-DOS and PC BIOS compatible systems software.

MEMORY CARDS

Portfolio can store and retrieve data and programs from its own RAM, or from small credit card size memory cards, that slot into its built-in card drive. The cards are available in three sizes, 32K, 64K and 128K, so you can carry a library of data in your pocket. The card drive also accepts ROM cards, which can contain commercial or custom software.

POWER SUPPLY

Portfolio is powered by three AA batteries which will run for up to six weeks with normal use, or from the mains using an adaptor. All the peripherals take their power from the Portfolio, so no extra batteries or adaptors are required. A 'battery-low' warning and memory back-up ensure that information is not lost when the batteries are changed.

INTERFACES & PERIPHERALS

Portfolio can communicate with other computers and supports a growing range of peripherals via a built-in 60 pin bus connector. Peripherals available include serial and parallel interfaces and memory expanders (to 640K). You can also add a card drive to your desktop PC, to enable it to read/write to Portfolio's cards.

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Before you decide when to buy your new Atari Portfolio, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after buying your Portfolio, when you may require additional peripherals or software, or help and advice with your new purchase. And, will the company you buy from contact you with details of new Portfolio products? At Silica Systems, we ensure that you will have nothing to worry about. Silica Systems is a new division of Silica Shop, the UK's leading Atari specialists. This new division has been established to provide a service to the more serious home user, as well as to business and education purchasers. Silica have been established for over 12 years, and have an annual turnover of £13 million. With our unrivalled experience and expertise, we can now claim to meet our customers requirements with an understanding which is second to none. But don't just take our word for it. Complete and return the coupon now, for our latest Free literature and begin to experience the "Silica Systems Service".

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